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PROTECTIVE FORCE



U.S. DEPARTMENT OF ENERGY
Office of Security and Safety Performance Assurance

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Performance Assurance

PROTECTIVE FORCE

1. **PURPOSE.** This Manual establishes the requirements for the management and operation of the U.S. Department of Energy (DOE) Protective Force (PF). This Manual also establishes the requirements for firearms operations and defines the firearms courses of fire. The 10 chapters and five appendices in Section C provide detailed requirements for qualification with various firearms.
2. **OBJECTIVES.**
 - a. Effect the policy in DOE P 470.1, *Integrated Safeguards and Security Management Policy (ISSM)*, by integrating protective force into DOE operations as determined by line management, and according to sound risk management practices. [DOE P 470.1, *Integrated Safeguards and Security Management Policy (ISSM)*, is the Department's philosophical approach to the management of the Safeguards & Security (S&S) Program. A principal objective of the ISSM Program is to integrate S&S into management and work practices at all levels, based on program line management's risk management-based decisions, so that missions may be accomplished without security events, such as interruption, disruption or compromise. This approach includes individual responsibility and implementation of the security requirements found in this Manual.]
 - b. Establish and maintain uniform requirements for PF personnel and firearms operations, to include the firearms qualification and re-qualification of Federal Officers, Federal Agents, Special Agents, and Security Police Officers by certified Federal and contractor firearms instructors.
3. **PROGRAM INTEGRATION.** The PF program must be integrated with other programs such as S&S program planning and management, physical protection, information security, personnel security, and nuclear material control and accountability. Additionally, the activities and requirements in the weapons surety, foreign visits and assignments, safety, emergency management, cyber security, intelligence and counterintelligence programs should also be considered in the implementation of this Manual.
4. **CANCELLATIONS.** The directives listed below are canceled. Cancellation of a directive does not by itself modify or otherwise affect any contractual obligation to comply with the directive. Cancelled directives that are incorporated by reference in a contract remain in effect until the contract is modified to delete the reference to the requirements in the canceled directives. The publication of this Manual incorporates previous memoranda and letters that were issued by the Office of Security or its predecessor organizations that established policy.
 - a. DOE M 473.2-1A, *Firearms, Qualification Courses Manual*, dated 1-17-02
 - b. DOE M 473.2-2, *Protective Force Program Manual*, dated 6-30-00

5. APPLICABILITY.

- a. Departmental Elements. Except for the exclusion in paragraph 5.c., this Manual applies to all Departmental elements listed on Attachment 1. This Manual automatically applies to Departmental elements created after it is issued.

The Administrator of the National Nuclear Security Administration (NNSA) will assure that NNSA employees and contractors comply with their respective responsibilities under this Manual.

b. Contractors.

- (1) The Contractor Requirements Document (CRD), Attachment 2, sets forth requirements of this Manual that apply to site/facility management contracts that include the CRD.
- (2) The CRD must be included in the site/facility management contracts that involve classified information or matter, or nuclear materials and contain DOE Acquisition Regulation (DEAR) clause 952.204-2, *Security Requirements*.
 - (a) Departmental elements must notify contracting officers of affected site/facility management contracts to incorporate this directive into those contracts.
 - (b) Once notified, contracting officers are responsible for incorporating this directive into the affected contracts via the *Laws, Regulations, and DOE Directives* clause of the contracts.
- (3) A violation of the provisions of this directive relating to the safeguarding or security of Restricted Data or other classified information may result in a civil penalty pursuant to subsection a. of section 234B, of the Atomic Energy Act of 1954 (42 U.S.C. 2282b.). The procedures for the assessment of civil penalties are set forth in Title 10, Code of Federal Regulations (CFR), Part 824, *Procedural Rules for the Assessment of Civil Penalties for Classified Information Security Violations*, (10 CFR part 824).
- (4) As stated in DEAR clause 970.5204-2, titled *Laws, Regulations, and DOE Directives*, regardless of the performer of the work, site/facility contractors with the CRD incorporated into their contracts are responsible for compliance with the CRD. Affected site/facility management contractors are responsible for flowing down the requirements of the CRD to subcontracts at any tier to the extent necessary to ensure compliance with the requirements. In doing so, contractors must not unnecessarily or imprudently flow down requirements to subcontracts. That is, contractors must ensure that both they and their subcontractors comply with the

requirements of this CRD and incur only costs that would be incurred by a prudent person in the conduct of competitive business.

- (5) This Manual does not automatically apply to other than site/facility management contracts. Application of any of the requirements in this Manual to other than site/facility management contracts will be communicated as follows.
 - (a) Heads of Field Elements and Headquarters Departmental Elements. Review procurement requests for new non-site/facility management contracts that involve classified information or matter, or nuclear materials and contain DEAR clause 952.204-2, *Security Requirements*, and, if appropriate, ensure that the CRD of this Manual is included in the contract.
 - (b) Contracting Officers. Assist originators of procurement requests who want to incorporate the requirements of the CRD of this Manual in new non-site/facility management contracts, as applicable.
- c. Exclusion. In accordance the responsibilities and authorities assigned by Executive Order 12344 and to ensure consistency throughout the joint Navy and DOE organization of the Naval Nuclear Propulsion Program, the Deputy Administrator for Naval Reactors will implement and oversee all requirements and practices pertaining to this Manual for activities under the Deputy Administrator's cognizance.
6. DEVIATIONS. Deviations from the requirements contained in this Manual must be processed in accordance with DOE M 470.4-1, *Safeguards and Security Program Planning and Management*.
7. DEFINITIONS. Terms commonly used in the program are defined in the S&S Glossary located in DOE M 470.4-7, *Safeguards and Security Program References*. In addition to those in the Glossary, the following definitions are provided for use in this Manual.
 - a. DOE line management refers to DOE and NNSA Federal employees who have been granted the authority to commit resources or direct the allocation of personnel or approve implementation plans and procedures in the accomplishment of specific work activities.
 - b. Line management refers to DOE and NNSA Federal and contractor employees who have been granted the authority to commit resources or direct the allocation of personnel or approve implementation plans and procedures in the accomplishment of specific work activities.
 - c. DOE cognizant security authority refers to DOE and NNSA Federal employees who have been granted the authority to commit security resources or direct the

allocation of security personnel or approve security implementation plans and procedures in the accomplishment of specific work activities.

- d. Cognizant security authority refers to DOE and NNSA Federal and contractor employees who have been granted the authority to commit security resources or direct the allocation of security personnel or approve security implementation plans and procedures in the accomplishment of specific work activities.
 - e. For the purposes of this Manual, the Office of Security refers to the DOE Office of Security, Office of Security and Safety Performance Assurance.
8. IMPLEMENTATION. Requirements that cannot be implemented within 6 months of the effective date of this Manual or within existing resources must be documented by the cognizant security authority and submitted to the relevant program officers; the Under Secretary for Energy, Science and Environment or the Under Secretary for Nuclear Security/Administrator, NNSA; and the Office of Security. The documentation must include timelines and resources needed to fully implement this Manual. The documentation must also include a description of the vulnerabilities and impacts created by delayed implementation of the requirements.
9. CONTACT. Questions concerning this Manual should be directed to the Office of Security at (301) 903-6209.

BY ORDER OF THE SECRETARY OF ENERGY



CLAY SELL
Deputy Secretary

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SECTION A – PROTECTIVE FORCE PROGRAM

CHAPTER I - PROTECTIVE FORCE MANAGEMENT

1. PLANS, POST AND GENERAL ORDERS, AND PROCEDURES.

- a. Development. Written plans, post orders (POs), general orders (GOs), and procedures covering protective force (PF) routine, emergency, and administrative duties; tactical deployment; and other operational requirements must be developed. Plans, POs, GOs, and procedures must be clear, concise, and current.
 - (1) Plans. Required protection strategies; tactical response options, actions, and times; and other applicable response requirements must be addressed in response plans. Required PF plans include:
 - (a) Security incident response plans (SIRPs) covering response requirements to security incidents; adversary intrusion of a facility/site; and defense against adversary use of weapons, explosives, and chemical/biological weapons (CBW), as described in the DOE O 470.3, *Design Basis Threat (DBT) Policy*. SIRPs must provide specific response direction and required actions to PF personnel for applicable containment, denial, recapture, recovery, and pursuit strategy requirements and to support interruption/neutralization operations before completion of adversary task times. When a site/facility vulnerability assessment (VA), performance test, and/or site safeguards and security plan (SSSP) dictates a recapture strategy and/or interdiction/neutralization operations requirements for which a mechanical tactical entry (TE) capability alone will not meet required response times, the site/facility must develop an explosive TE capability and requisite SIRP.
 - (b) Facility evacuation response plans covering protection of security interests, employees, the public, and the environment during nuclear release incidents, adversary use of CBW, chemical/radiological/biological sabotage, and other site emergencies.
 - (c) Security contingency response plans covering PF work stoppages, PF recall measures, and required response actions of local, State, and Federal law enforcement agencies (LEAs). Security contingency response plans covering PF work stoppages must contain the Federal and PF contractor responsibilities, planning considerations, training, management oversight, and other activities related to the establishment of a contingency PF.

- (d) Target folders containing interagency compatible site descriptions and response planning documentation; and facility-specific information (e.g., engineering descriptions of buildings, entry/exit locations, response and observation positions); types and quantities of special nuclear material (SNM), or other attractive targets and their locations and critical paths to assist the PF and LEAs in conducting interagency compatible tactical operations. Target folders must be developed by sites possessing Category I or II quantities of SNM and/or significant radiological sabotage concern(s) using the format approved by the Director, Office of Security (see Section A, Appendix A-2).
 - (2) Post Orders and General Orders. PF responsibilities, assignments, and requirements must be addressed in POs and GOs.
 - (a) POs must contain specific guidance for operational requirements at a designated PF post. POs must be developed and implemented for temporary posts.
 - (b) GOs must contain guidance for PF personnel in the conduct of site-and facility-wide duties (e.g., visitor and access control, search requirements, escort procedures, communications, non-security contingency response requirements such as natural disasters, work stoppages).
 - (3) Procedures. Administrative, training, and other non-response-related operational requirements must be addressed in procedures.
- b. Availability. Plans, POs, GOs, and procedures must be available to the PF for reference and guidance. Individual POs for designated fixed and mobile (vehicle) posts must be located at these posts. GOs and administrative procedures must be available in a central location for easy reference; posts located in remote areas must have GOs located at the post. Response plans must be located at central alarm stations (CASs), secondary alarm stations (SASs), and other tactical command locations to allow ready reference by PF personnel tasked with coordinating response actions.
- c. Review. The cognizant security authority must review plans, POs, GOs, and procedures for currency when response requirements, duties, or administrative requirements are changed, but at least annually (at least every 12 months). The annual or special review for adequacy and currency must be documented to show the name of the reviewer and the date the review was completed. Any revisions or changes made to plans, POs, GOs, or procedures as a result of the review must be highlighted or marked in such a manner to ensure PF personnel are aware of those revisions and changes.

- d. Non-Department of Energy (DOE) Law Enforcement Agency Support. Plans requiring participation by local, State, and Federal LEAs in support of the site must be documented and coordinated by DOE line management. Any applicable LEA response support is detailed in an SSSP, however, a memorandum of understanding (MOU) documenting the anticipated level and priority of support from each LEA must be completed, reviewed, and updated annually (at least every 12 months).
2. QUALIFICATION REQUIREMENTS. PF personnel must comply with Departmental medical, physical fitness, and firearms qualifications and training requirements. [10 Code of Federal Regulations (CFR) 1046, *Physical Protection of Security Interests*]
 - a. Access Authorization.
 - (1) PF personnel must possess access authorizations commensurate with the highest level of classified information or matter to which they have or potentially have access. Access authorizations must be accomplished in accordance with DOE M 470.4-5, *Personnel Security*.
 - (2) Security Police Officers (SPOs) and Special Agents (SAs) must possess L or Q access authorizations.
 - (3) Federal Officers, Federal Agents, and SPOs with access to nuclear weapons, nuclear test devices, or complete nuclear assemblies; Category I and II quantities of SNM; must possess Q access authorizations.
 - b. Medical, Physical Fitness, Firearms, and Training Standards.
 - (1) Security Officers (SOs). SOs must meet the training, qualification, and medical requirements. [10 CFR 1046, Subpart B, *Protective Force Personnel*].
 - (2) Security Police Officers (SPOs). SPOs must meet the medical, physical fitness, firearms, and training and qualifications requirements. [10 CFR 1046, Subpart B, *Protective Force Personnel*]. Before initial assignment to independent duties, SPO candidates must be formally evaluated and certified in accordance with procedures based on site-specific requirements approved by DOE line management.
 - (3) Federal Officers (FOs)/Federal Agents (FAs)/Special Agents (SAs). FOs/FAs/SAs must complete a formal training and qualification program before assignment to duties. The training program must be based on assigned functions. Firearms, physical fitness, and medical qualifications must meet DOE and/or Office of Personnel Management requirements for the position assignment.

- (4) Maintaining Physical Fitness Standards. PF personnel must maintain physical fitness standards. An FO/FA/SA or SPO may be required to demonstrate they meet physical fitness qualification standards during an inspection, survey, review, audit, or other situation directed by DOE line management. Failure to meet the physical fitness standard will be treated as if the individual failed the first attempt during annual qualification. In the event of a failure specific requirements must be followed. [10 CFR 1046, Subpart B, *Protective Force Personnel*].
- c. Special Skills Qualifications. Site-specific conditions may justify requirements for PF personnel to possess qualifications for special skills (e.g., security helicopter operations, ascending and descending techniques, mechanical and explosive TE techniques, CBW countermeasures, hostage negotiation, precision rifleman/forward observer team (PRFOT), communications, exercise controllers/evaluators, or alarm station monitoring). Responsible managers must ensure that personnel assigned to these duties are trained, formally evaluated, and certified, if required, by an appropriate accrediting authority before performing those duties. Certifications required by specific job functions (e.g., a Federal Aviation Administration (FAA) license for pilots) must be kept current. The employing organization for each individual must maintain a record of qualification and/or certification.
- d. Firearms.
 - (1) No person will be authorized to carry a firearm as a PF officer until DOE line management is assured that the individual is qualified in accordance with the firearms qualification standards established in Section C. When DOE firearms qualification courses do not exist or do not address site-specific deployment of issued firearms, site-specific supplemental qualification courses must be developed. These supplemental courses must be approved by the Associate Administrator for Defense Nuclear Security after coordination with the Office of Security or by the Director, Office of Security, as appropriate.
 - (2) Every 6 months, each FO/FA/SA and SPO must meet the applicable firearms qualification standards. Requalification must occur no later than the sixth month from the previous qualification. The requalification may be accomplished at any time during the requalification month. If an FO/FA/SA or SPO does not requalify before (see 3., below) or during the requalification month, the individual's authority to carry firearms and make arrests must be suspended until such time as requalification is completed. If requalification occurs before the requalification month, the next requalification must become due 6 months from the new month.
 - (3) PF personnel must maintain firearms proficiency. An FO/FA/SA or SPO may be required to demonstrate the ability to meet qualification standards

during an inspection, survey, review, audit, or other situation directed by DOE line management. Failure to meet the performance standard will be treated as if the individual failed the first attempt during semi-annual qualification. Procedures in paragraph (4)(d), below must be followed in the event of a failure.

- (4) Each FO/FA/SA and SPO must qualify with each firearm that is reasonably expected to be used during duty assignment on the qualification course indicated in Section C and any applicable approved site-specific supplemental qualification course.
 - (a) Qualifications must be accomplished with the same type of firearm, model and associated features (i.e., caliber, sight system), and ammunition (i.e., equivalent in trajectory and recoil) used while on duty.
 - (b) Before any range activity, each FO/FA/SA and SPO must be given a briefing on the basic principles of firearms safety. However, a firearms safety briefing is not required for each qualification course using the same firearm after the initial safety presentation for that firearm.
 - (c) FOs/FAs/SAs and SPOs must be allowed up to two initial attempts to qualify semi-annually (at least every 6 months). A Range Master or other person in charge of the range will declare to personnel on the firing line, "This is a qualifying run." Once this statement is made, any firearms activity will constitute a qualification attempt. The FO/FA/SA or SPO must qualify during one of the two attempts.
 - (d) Failure to qualify, as set out in paragraph (4)(c), above, will result in suspension of the authority to carry firearms and make arrests. Upon failure, a FO/FA/SA or SPO will then enter a standardized, remedial firearms training program based on training instruction developed by the DOE National Training Center (NTC) and approved by the Director, Office of Security. The remedial firearms training program will include basic firearm manipulation skills, firearms safety, and necessary individual training to afford a reasonable opportunity to meet the firearms qualification standards.
 - 1 Any FO/FA/SA or SPO, who completes the remedial training and fails to qualify after the two subsequent attempts, will lose FO/FA/SA or SPO status and the authority to carry firearms and make arrests. The total number of initial requalification and remedial requalification attempts may not exceed four.

- 2 Any person who requires remedial training on three consecutive semi-annual qualification periods, with the same firearm on the same qualification course, will lose FO/FA/SA or SPO status.
 - 3 Loss of FO/FA/SA or SPO status for either failure to meet qualification standards or excessive remedial requirements will result in the individual's removal from the FO/FA/SA or SPO position. Site-specific procedures must be developed and approved by DOE line management to allow a single additional qualification attempt within 1 year of removal from status if the former FO/SA or SPO presents evidence of outside training that indicates the required skill level.
 - 4 Site-specific procedures must be developed and approved by the Assistant Deputy Administrator for Secure Transportation to allow a single additional qualification attempt within 1 year of removal from status if the former FA presents evidence of outside training that indicates enhanced skill level. Upon qualification in this final attempt, reinstatement may be effected where site-specific employment conditions, position availability, and procedures permit. Any subsequent application for rehire will require training as provided to any other initial applicant for an FO/FA/SA or SPO position.
 - 5 The PF Range Master will designate, in writing, the firearms instructor(s) who are authorized to certify the validity of the scores achieved during qualification attempts.
- (5) PF organizations not firing individually-issued firearms during qualification must have written procedures authorizing the specific model and associated features of all firearms. These procedures must be approved by DOE line management.
 - (6) Ammunition listed in the DOE Standardized Ammunition Contract Guide must be used for training, duty, and qualification. The purpose of the standardized ammunition contract is to provide cost-effective, bulk procurement of ammunition for DOE sites. Should a site-specific PF protection mission requirement require the use of a specialized ammunition not listed in the current approved ammunition list, the site may procure and field the ammunition upon approval of DOE line management.
- e. Authority to Carry Firearms.

- (1) The employing organization must maintain written documentation indicating each individual who is authorized to carry firearms and make arrests without warrant while performing official duties.
- (2) Firearms instructors not currently assigned FO/FA/SA or SPO duties may carry firearms when performing their instructional duties if authorized by DOE line management. These instructors must pass the firearms qualification courses for assigned firearms and for firearms that are the subject of instruction.

f. Pooling.

(1) Security Police Officers (SPO)-I/-II.

- (a) Any former SPO-I/-II who has been out of active SPO status for less than 6 months may return to active status after completing limited refresher training for the assigned SPO-level duties. The scope of limited refresher training will be determined by evaluation of the SPOs skills by a PF instructor and approved by the cognizant PF training manager. The scope of limited refresher training must include the use of deadly force, intermediate force weapons, a review of basic firearms training, and site-specific assigned duties.
- (b) Any former SPO-I/-II who has been out of active SPO status for more than 6 months but less than 12 months may return to active status after completing prescribed refresher training for the assigned SPO-level duties. The prescribed refresher training will be designed by a PF instructor and approved by the cognizant PF training manager. The scope of prescribed refresher training must include an overall review of the SPO-I/-II training requirements in Section A, Chapter IV and site-specific duties.
- (c) Any former SPO-I/-II who has been out of active SPO status for more than 12 months may return to active status only after again completing the entire DOE basic SPO training course and site-specific requirements as noted in Section A, Chapter IV.
- (d) After completing the refresher/prescribed training program, but before re-assignment to SPO-I/-II duties, the SPO must successfully complete all required medical, physical fitness, and firearms (for assigned firearms) qualification requirements.

(2) SPO-III.

- (a) Any former SPO-III who has been out of active SPO-III status for less than 6 months may return to active status after completing

limited refresher training for assigned SPO-III duties. The scope of limited refresher training will be determined by evaluation of the SPO-III's skills by a SPO-III instructor and approved by the cognizant Special Response Team (SRT) Commander. The scope of limited refresher training must include the use of deadly force, a review of basic firearms training for assigned firearms, and site-specific assigned duties.

- (b) Any former SPO-III who has been out of active SPO-III status for more than 6 months but less than 12 months may return to active status after completing prescribed refresher training for assigned SPO-III duties. The prescribed refresher training will be designed by an SRT instructor and approved by the cognizant SRT commander. The scope of prescribed refresher training must include an overall review of the SPO-III training requirements in Section A, Chapter IV and site-specific assigned duties.
- (c) Any former SPO-III who has been out of active SPO-III status for more than 12 months may return to active status only after again completing the entire DOE SPO-III Basic Qualification Course and site-specific requirements as noted in Section A, Chapter IV.
- (d) After completing the refresher/prescribed training program, but prior to re-assignment to SPO-III duties, the SPO-III must successfully complete all required medical, physical fitness, and firearms (assigned firearms and live-fire shoot house [LFSH]) qualification requirements.

3. CREDENTIALS AND SHIELDS. Credentials and shields are issued to qualified DOE Federal employees, FOs/FAs/SAs, and contractor personnel to identify the bearer as having the authority to perform assigned official duties. The design of all S&S credentials and shields must be approved by the Director, Office of Security, and where applicable, DOE line management.

a. Types of Credentials and Shields.

- (1) Contractor Security Credential. This credential is issued to those DOE contractor employees conducting security interviews, investigations, inquiries, inspections, and/or surveys as official duties or functions. The design of the contractor security credential must be approved by the Director, Office of Security.
- (2) Federal Officer Credential with Shield (Unarmed). This credential is issued to DOE Federal employees, who have been designated as unarmed FOs, for identification when conducting interviews, inquiries, inspections, surveys, investigations, and liaison activities with law enforcement officials. These FOs do not require firearms/arrest authority. The shield is

a metal, police-type badge that is issued for ready identification when conducting a Federal security function (e.g., conducting an investigation). Each shield must bear a serial number imprinted on its face. The credential must bear the shield number. The design of the FO credential and shield (unarmed) must be approved by the Director, Office of Security.

- (3) Federal Arming and Arrest Credentials with Shield (Armed). These credentials are issued to DOE Federal employees who require firearms/arrest authority as an official function or duty.
- (a) Federal Officer Credential with Shield (Armed). This credential is issued to DOE Federal employees who require firearms/arrest authority (i.e., pursuant to section 161.k. of the Atomic Energy Act [42 U.S.C. 2201 (k)] or section 661 of the DOE Organization Act [42 U.S.C. 7270a]) as an official function or duty. The shield is a metal, police-type badge that is issued for ready identification when conducting a Federal law enforcement function (e.g., making an arrest or conducting an investigation). Each shield must bear a serial number imprinted on its face. The credential must bear the shield number. The design of the FO credential and shield (armed) must be approved by the Director, Office of Security.
- (b) Special Agent Credential with Shield (Armed). This credential is issued to DOE Federal employees who require firearms/arrest authority (i.e., pursuant to section 161.k. of the Atomic Energy Act [42 U.S.C. 2201 (k)] or section 661 of the DOE Organization Act [42 U.S.C. 7270a]) as an official function or duty. The shield is a metal, police-type badge that is issued for ready identification when conducting a Federal law enforcement function (e.g., participating in special operations such as executive protection, making an arrest, or conducting an investigation). Each shield must bear the shield number imprinted on its face. The credential must bear the shield number. The design of the SA credential and shield must be approved by the Director, Office of Security.
- (c) Federal Agent Credential with Shield (Armed). This credential is issued to Office of Secure Transportation (OST) nuclear material courier FAs who require firearms/arrest authority (i.e., pursuant to section 161.k. of the Atomic Energy Act [42 U.S.C. 2201 (k)]) as an official function or duty. The shield is a metal, police-type badge that is issued for ready identification when operating in an official capacity (i.e., OST FA function). Each shield must bear a serial number imprinted on its face. The credential must bear the shield number. The OST shield design must be approved by the Assistant Deputy Administrator for Secure Transportation, and the Director, Office of Security.

- (4) Contractor Arming and Arrest Credential with Shield (Armed). This credential is issued to DOE contractor employees who require firearms/arrest authority as a function or duty. PFs wearing field-type uniforms may utilize cloth/embroidered-type shield on these uniforms. The Contractor Arming and Arrest Credentials with Shield (Armed) are issued to the following:
- (a) Strategic Petroleum Reserve (SPR) Security Police Officer Credential with Shield (Armed). This credential is issued to SPR SPOs who require Federal firearms/arrest authority (i.e., pursuant to section 661 of the DOE Organization Act {42 U.S.C. 7270a}) for protection of the SPR as a primary function or duty. The SPR shield design must be approved by the DOE SPR Director of Security and the Director, Office of Security.
 - (b) Security Police Officer (Armed). This credential is issued to DOE contractor SPOs who require Federal firearms/arrest authority (i.e., pursuant to section 161.k. of the Atomic Energy Act {42 U.S.C. 2201 (k)}) as a primary function or duty. The SPO shield design must be approved by the DOE cognizant security authority and the Director, Office of Security.

NOTE: SOs may be issued a metal police-type shield at the discretion of the cognizant security authority.

- b. Issuance of Credentials and Shields. Fulfillment of training and qualification requirements for the position or duties must be verified before issuing a credential or credential with shield to an individual. Credentials and shields for individuals who fail to maintain relevant training and qualification requirements must be revoked and retrieved.
- (1) Credential and Shield Issuing Authority.
 - (a) The issuing authorities for the FO Credential with Shield (Unarmed), the Contractor Security Credential, the FO Credential with Shield (Armed), the SA, and the Contractor Arming and Arrest Credential (SPO) with Shield (Armed) are the Director, Office of Headquarters Security Operations; and the DOE cognizant security authority, for their respective organizations.
 - (b) The issuing authority for the OST Credential with Shield (Armed) is the Assistant Deputy Administrator for Secure Transportation.
 - (c) The issuing authority for the SPR Arming and Arrest Credential (SPO) with Shield (Armed) is the DOE SPR Director of Security.

- (2) Reissuing Credentials. If an employee experiences a significant change in facial appearance that could hinder positive identification or undergoes a name change, a credential with a new photograph must be requested by the individual, the individual's supervisor, a security official, or PF management personnel.
- (3) Blank Credential Stocks and Unissued Shields.
 - (a) The Director, Office of Headquarters Security Operations, must procure and maintain blank Federal and Contractor Identification Credentials, Basic Security Credentials, SPO Security Credentials, FO Credentials, SA Credentials, and unissued FO/SA shields. Requests for these blank credential stocks and unissued FO/SA shields must be submitted, in writing, to the Director, Office of Security.
 - (b) The Assistant Deputy Administrator for Secure Transportation must procure and maintain an inventory of OST blank credentials and unissued FA shields.
 - (c) SPR project office authorities must maintain an inventory of SPR blank credentials and shields.
 - (d) PF contractors must procure and maintain a sufficient supply of site-specific unissued SPO shields.
- c. Termination of Use. Credentials and shields are the property of the Government and must be returned to the issuing office when an employee transfers, terminates, or otherwise no longer requires the credential or shield.
- d. Recovery of Security Credentials and Shields. Credentials and shields must be recovered at the final security checkpoint or earlier, and the individuals must be escorted from the site if circumstances or conditions indicate such action is needed. Recovered credentials must be destroyed unless being held as evidence in an ongoing security investigation. Recovered shields may be retained and reissued.
- e. Accountability of Credentials and Shields.
 - (1) Records. Issuing offices must maintain records showing the disposition of credentials and shields. Such records must include the description and serial number of the item issued, date of issuance, name, organization, and date of destruction. [Schedule 18 of the General Records Schedule (GRS) applies.]
 - (2) Lost Credentials and Shields. A record of missing credentials and shields must be maintained. Personnel and/or systems controlling access to

security areas must be provided current information regarding missing credentials or shields in order to prevent their misuse. The loss or recovery of credentials or shields must be reported immediately to the issuing office, Federal and local law enforcement agency (LLEA) authorities, and the Director, Office of Security.

- (3) Storage of Blank Security Credentials and Unissued Shields. Blank credentials and unissued shields must be stored in a manner assuring their protection against loss, theft, or unauthorized use.

4. ALLOCATION OF PERSONNEL RESOURCES.

- a. Location, Manning, and Scheduling. The location and manning of fixed and mobile posts must be determined using the DBT, local threat statements and vulnerability assessments, SSSPs, and appropriate DOE directives. PF personnel must be available and positioned to respond to a verified threat occurrence to deny, contain, interdict, interrupt, and/or neutralize threats within the required response times. Work schedules must be developed and monitored on a site-specific basis to provide adequate relief, training time, balanced overtime, and sufficient time off to ensure on-duty personnel work at peak physical and mental effectiveness. PF work schedules must be based on the following guidelines, where appropriate and consistent with existing collective bargaining agreements and contracts. No more than:

- (1) 12 total hours per work day, excluding shift change and equipment issuing activities, should be scheduled.
- (2) 60 total hours per workweek should be scheduled.

- b. Supervision. Supervision of PF personnel must be provided to the extent required to ensure optimal performance of duties.

- (1) Shift Supervisory Requirements. There must be full-time supervision at sites where more than six PF personnel are assigned per shift.

Other Supervision Means. Various means and devices, such as telephone or radio contact or contact by another supervisor who is physically closer to the post, may be used as supplements to supervision or, in the case of small facilities or remote areas, to supplant supervision to assure that the necessary areas are patrolled and other security functions are performed.

- (2) Post Inspections. Once per shift, supervisors must physically inspect, or contact by telephone or radio, PF posts to ensure operations are being conducted per DOE and site requirements and procedures.

5. DOE AND CONTRACTOR PERSONNEL MANAGEMENT.

- a. Pre-Employment Screening. Screening (e.g., employment references, criminal background, credit, medical, and physical fitness) must be conducted to select individuals with potential to qualify for PF positions.
- b. Job Analyses. Job analyses (e.g., a listing of common tasks required for PF assignments) must be prepared and reviewed annually (at least every 12 months) for positions directly relating to protective operations. Job analyses must be used to prepare job descriptions and serve as basic input documents to local training requirements. Job analyses must address site-specific requirements for those activities that have not been standardized and issued by the DOE NTC.
- c. Human Reliability Program. DOE line management must identify positions that meet requirements of the Human Reliability Program (HRP) (see 10 CFR 712, *Human Reliability Program*).
- d. Training. See 10 CFR 1046, *Physical Protection of Security Interests*; DOE O 360.1B, *Federal Employee Training*; DOE M 470.4-1, *Safeguards and Security Program Planning and Management*; and Section A, Chapter IV.
- e. Records. See 10 CFR 1046, *Physical Protection of Security Interests*, the GRS, or the DOE Records Schedules.
- f. Reporting Requirement. Supervisors in the PF command structure and the manager in charge of on-site PF operations must ensure that any suspected criminal violations are reported in accordance with DOE M 470.4-1, *Safeguards and Security Program Planning and Management*, and, where appropriate, DOE O 232.1A, *Occurrence Reporting and Processing of Operations Information*.
- g. Implementation. DOE line management must approve contractor-developed procedures to implement paragraphs a. and b. above, based on internal organization (e.g., personnel, human resources, training, and labor relations) and collective bargaining agreements in effect.

CHAPTER II - PROTECTIVE FORCE DUTIES

1. SECURITY OFFICERS.

- a. Assignments. Security Officers (SOs) are unarmed and may be used to augment Security Police Officers (SPOs) and/or to perform duties (e.g., administrative, access control, facility patrol, escort, and assessment and reporting of alarms) and enforce safeguards and security (S&S) protection requirements when armed protective force (PF) personnel are not required.
- b. Knowledge, Skills, and Abilities. Job analyses (JAs) must be completed and approved by the Department of Energy (DOE) cognizant security authority to determine the specific knowledge, skills, and abilities (KSAs) required to perform each job assignment. The JA must be reviewed annually (at least every 12 months) to ensure all KSAs are current and applicable for each job assignment. SOs must demonstrate familiarity with, and knowledge of, the responsibilities identified in the JA and must show proficiency in the skills and abilities necessary to perform required assigned job tasks including, but not limited to, the following:
 - (1) knowledge of and ability to perform site and routine patrol duty requirements;
 - (2) operation of individual and post equipment, and vehicles;
 - (3) operation of communication equipment employed, including proficiency in accepted communication terminology, acronyms, and phonetics, and the methods for verifying operator identity of incoming signals and signaling duress;
 - (4) knowledge of, and the ability to apply, DOE directives, site policies, plans, Post Orders (POs)/General Orders (GOs), and procedures governing the SO's role in site protection;
 - (5) knowledge of Federal- and State-granted authority applicable to assigned activities and responsibilities between the PF and local LEAs (LLEAs); and
 - (6) knowledge of post or patrol operations, including the following, as applicable:
 - (a) access control systems, procedures, and operations including visitor and employee identification, badging, passes, visitor logging procedures, and property identification;
 - (b) prohibited article detection and handling requirements, including the operation of personnel-, vehicle-, and package-screening devices;

- (c) inspection techniques for persons, packages, and vehicles;
- (d) procedures for personnel and vehicle escorts;
- (e) implementation of plans, POs, GOs, and procedures to protect the site during disruptive events (e.g., fire and civil disturbances);
- (f) recognition of S&S interests being protected, including locations, routine uses, and movements of the interests through and/or at the duty post;
- (g) reporting incidents, observations, and assessments of alarm annunciations;
- (h) methods of unarmed self-defense;
- (i) awareness of the types of, and threats posed by, weapons of mass destruction (WMD); and
- (j) use of assigned personal protective equipment (PPE).

2. **SECURITY POLICE OFFICERS.** 10 Code of Federal Regulations (CFR) 1047, *Limited Arrest Authority and Use of Force by Protective Force Officers*, delineates SPOs responsibility at DOE facilities (other than the Strategic Petroleum Reserve [SPR]) to enforce specified laws regarding Government property and criminal provisions of the Atomic Energy Act. Such SPOs may, in accordance with 10 CFR 1047 be given additional local law enforcement responsibility on a site-specific basis. 10 CFR 1049, *Limited Arrest Authority and Use of Force by Protective Force Officers of the SPR*, delineates SPO responsibility at the SPR to enforce Federal criminal laws to protect SPR Government property and personnel. SPOs must possess the individual and team skills necessary to protect S&S interests from theft, sabotage, and other hostile acts that may cause adverse impacts on national security, the health and safety of employees, the public, or the environment.

a. Armed SPOs must be assigned to protect security areas that:

- (1) receive, use, process, or store Category I or II quantities of special nuclear material (SNM) (see DOE M 470.4-6, *Nuclear Material Control and Accountability*);
- (2) manufacture, store, or test nuclear weapons, nuclear test devices, or complete nuclear assemblies;
- (3) represent a significant target for sabotage (e.g., radiological or toxicological); and
- (4) contain a unique capability in DOE that must be protected for purposes of program continuity or to preclude an unacceptable impact to national

security, the health and safety of DOE and contractor employees, the public, or the environment when the need has been so designated by the DOE line management

- b. SPO Levels. SPOs are categorized according to a three-level system (SPO-I, -II, and -III) that tailors training requirements to duties. JAs for duty assignments must be completed and approved by the DOE cognizant security authority to determine the KSAs required to perform the duties of each job assignment. The SPO JAs must be reviewed annually (at least every 12 months) to ensure all KSAs are current and applicable for each specific SPO job assignment. The following is a general description of duties among the SPO levels.

(1) SPO-I.

- (a) Assignments. Fixed, armed posts with no external response requirement (e.g., access control points, Central Alarm Station (CAS)/Secondary Alarm Station (SAS) operation, and towers).
- (b) Qualifications. Standardized SPO-I training and site-specific training as identified by the site-specific JA. Physical fitness standard of a 0.5-mile run in 4 minutes and 40 seconds and a 40-yard prone-to-running dash in 8.5 seconds. Applicable firearms qualification standards are in Section A, Chapter I, 2.d. and in Section C.

(2) SPO-II.

- (a) Assignments. Armed posts that require response and assessment in support of facility protection strategies.
- (b) Qualifications. DOE standardized SPO-I and -II training and site-specific training as identified by the site-specific JA. Physical fitness standard of a 1-mile run in 8 minutes and 30 seconds and a 40-yard prone-to-running dash in 8 seconds for SPO-IIs assigned as offensive combative personnel. Physical fitness standard of a 0.5-mile run in 4 minutes and 40 seconds and a 40-yard prone-to-running dash in 8.5 seconds for those SPO-IIs assigned as defensive combative personnel. Firearms qualification standards as identified in Section A, Chapter I, 2.d., and in Section C.

(3) SPO-III.

- (a) Assignments. Special Response Team (SRT) activities that include crisis entry; hostage rescue; recapture, recovery, and pursuit operations; force options; and other team tactical solutions to adversary activities.

- (b) Qualifications. DOE standardized SPO-I, applicable portions of standardized SPO-II, SPO-III training, and site-specific training as identified by the site-specific JA. Physical fitness standard of a 1-mile run in 8 minutes and 30 seconds and a 40-yard prone-to-running dash in 8 seconds. Firearms qualification standards, as applicable, in Section A, Chapter I, 2.d. and Section C.

- c. SPO-I KSAs. The requirements for each SPO-I to demonstrate familiarity with, and knowledge of, the responsibilities identified in the applicable JA and proficiency in individual KSAs necessary to perform the job tasks include, but are not limited to, those identified for SOs and the following:
 - (1) knowledge and proficiency in the use and care of all weapons required by duty assignment;
 - (2) knowledge of and the ability to apply DOE and site requirements, plans, and procedures required by the SPOs assignment;
 - (3) knowledge of, and the ability to apply, DOE requirements on the use of deadly force and limited arrest authority; and
 - (4) knowledge of and proficiency in post operations including, as applicable:
 - (a) specific post duties;
 - (b) requirements for the protection of sensitive materials, such as classified information or matter; and
 - (c) methods of self-defense, detention and arrest.

- d. SPO-II KSAs. The requirements for each SPO-II to demonstrate familiarity and knowledge of the responsibilities identified in the site-specific JA and proficiency in individual and team KSAs necessary to perform the job tasks include, but are not limited to, those identified for SPO-Is listed above and the following:
 - (1) knowledge of and the ability to apply DOE and site-specific response requirements; and
 - (2) knowledge of and proficiency in post and patrol operations including:
 - (a) requirements for and ability to perform as escorts for sensitive materials such as nuclear weapons, components, and assemblies; SNM; and classified information or matter;
 - (b) individual techniques and small unit/team tactics to respond, assess alarm annunciations and other indications of intrusion, and

- implement containment, denial, recapture, recovery, and pursuit strategies;
 - (c) procedures and requirements for investigations, search of persons and property for evidence, and recognition, seizure, and preservation of evidence;
 - (d) response to civil disturbances;
 - (e) tactics necessary to engage and neutralize adversaries to include their capabilities, weapons, and equipment as defined in the DOE Design Basis Threat (DBT) and local threat guidance;
 - (f) familiarity and recognition of various forms and configurations of security interests being protected; and
 - (g) actions required of first responders to WMD incidents.
- e. SPO-III KSAs. The requirements for each SPO-III to demonstrate familiarity and knowledge of the responsibilities identified in the JA and proficiency in the individual and team KSAs necessary to perform the job tasks include, but are not limited to, those identified for SPO-IIs as listed above and the following:
- (1) ability to act as a member of a tactical response team using force options and tactics necessary for interdiction, interruption, neutralization operations directed against an adversary and to support site-specific protection strategies; and
 - (2) ability to qualify with and/or employ site-approved special weapons, techniques, equipment, and vehicles necessary to protect the site or to engage, neutralize, and/or to pursue an adversary.
3. FEDERAL AGENTS (FAs). Armed DOE PF personnel designated as FAs under the authority of the Assistant Deputy Administrator for Secure Transportation must provide for the safe, secure, off-site domestic transportation of the following:
- a. DOE-owned or DOE-controlled nuclear explosives and nuclear devices;
 - b. Category II or greater quantities of SNM, excluding naval reactor core shipments;
 - c. limited-life components of nuclear weapons; and
 - d. other materials approved by the Assistant Deputy Administrator for Secure Transportation.
4. FEDERAL OFFICERS (FOs). DOE Federal employees designated by the Director, Office of Security, or the DOE cognizant security authority, as FOs, may or may not

possess firearms/arrest authority pursuant to section 161.k. of the Atomic Energy Act or section 661 of the DOE Organization Act, and must, when directed:

- a. conduct investigations;
 - b. conduct liaison activities with law enforcement officials; and
 - c. perform inquiries into local and national security issues.
5. SPECIAL AGENTS (SAs). Armed DOE Federal employees designated by the Director, Office of Security, as SAs, possess firearms/arrest authority pursuant to section 161.k. of the Atomic Energy Act or Section 661 of the DOE Organization Act, may be deputized by the U.S. Marshals Service, and must, when directed:
- a. participate in special operations such as executive protection;
 - b. conduct investigations;
 - c. conduct liaison activities with law enforcement officials; and
 - d. perform inquiries into local and national security issues.
6. SPECIAL SKILLS.
- a. General. PF operations may require individuals with additional special skills such as pilots, communications and alarm station operators, canine handlers, crisis negotiators, instructors, tactical entry (TE) specialists, and Precision Rifleman/ Forward Observer Team (PRFOT) personnel. The scope of such duties will be locally determined based on site-specific needs. If a standard training course has not been developed by the DOE National Training Center (NTC) for a required skill or is not available through another source, then local training must be developed based upon a site-specific JA.
 - b. Crisis Negotiation. Each crisis negotiator must have successfully completed the NTC or another DOE-approved crisis negotiation training course. At least once a year, crisis negotiation team members must be integrated into SRT exercises. Members of crisis negotiation teams must be familiar with PF operations, including SRT tactics and operations, but do not need to be SPO-trained and certified.
7. SUPERVISORS. Each PF supervisor must possess the skills to direct the actions of assigned personnel. Supervisors of SOs must be trained and qualified as an SO. Line supervisors of SPOs must be trained and qualified as SPOs and must meet applicable physical fitness qualification standards and certification standards for assigned duties. Each supervisor must demonstrate familiarity with and knowledge of the responsibilities identified in the applicable JA and proficiency in the skills and abilities necessary to perform those jobs. These include, but are not limited to, the following:

- a. knowledge of the duties and qualifications of supervised personnel;
 - b. familiarity with the basic operating functions of the facilities and the nature and location of S&S interests for which the supervisor has protection responsibilities;
 - c. ability to ensure that subordinates and their equipment are physically capable and ready for duty and to conduct post inspections to ensure post operations are in accordance with Departmental directives, and site requirements and procedures; and
 - d. knowledge of the duty logs and reports that must be completed, distributed, and acted upon.
8. INSTRUCTORS. Each instructor must possess the skills necessary to instruct PF personnel in the requirements for protecting S&S interests. Instructors must demonstrate knowledge of the responsibilities identified in the JA and proficiency in the skills and abilities necessary to perform those jobs. These include, but are not limited to the following:
- a. knowledge of teaching methods and instructional techniques;
 - b. knowledge of assigned subject/topical areas for the level of instruction delivered;
 - c. ability to develop course objectives, lesson plans, training aids, and student evaluations; and
 - d. skill in presenting a complete instructional lesson plan/course.

CHAPTER III -SPECIAL RESPONSE TEAM

1. **PROGRAM REQUIREMENTS.** The mission of the Special Response Team (SRT) is to resolve incidents that require force options that exceed the capability of Security Police Officer (SPO)-I and -II personnel and/or existing physical security systems. The SRT must be capable of effective and ready response. The SRT must be trained and equipped to conduct interdiction, interruption, and neutralization operations and containment, denial, recapture, recovery, and pursuit strategies directed against an adversary.
 - a. An SRT is required at facilities or sites that receive, use, transport, or process Category I quantities of special nuclear material (SNM) (including credible roll-up of Category II to Category I quantities of SNM).
 - b. The authorization for an SRT capability at a Departmental site or facility, not meeting requirements in paragraph 1.a. above, must be approved by Department of Energy (DOE) line management, with notification to the cognizant Departmental element. Approvals must be based on a site Vulnerability Assessment (VA) that documents the need for an SRT (e.g., a radiological/toxicological/sabotage target that could have adverse impact on national security, the health and safety of employees, the public, or the environment).
 - c. The SRT must be staffed with qualified and certified SPO-III personnel.
2. **CONCEPT OF OPERATIONS.** An SRT must be capable of resolving adversary actions using force options (including, but not limited to, open-air, mobile, stronghold, and emergency assault using dynamic and covert techniques) and team tactics for interdiction, interruption, neutralization, containment, denial, recapture, recovery, and pursuit operations.
 - a. **Team Availability.** An SRT must be available at all times. The SRT may be either a full-time assigned unit or a unit constituted during an incident.
 - b. **Plans.** SRT operations and tactical response must be documented in the Site Safeguards and Security Plan (SSSP).
 - c. **Team Composition.** Sites must consider the functional team positions listed below when developing and deploying an SRT. These positions must not be construed as the minimal composition of an SRT. The specific SRT composition, positions, staffing levels, and functional capabilities must be dependent on the SSSP, site or facility mission, VA, protection strategies, and performance testing results. The absence of specialized functional capabilities, such as mechanical or explosive breaching, or precision rifleman/forward observer teams (PRFOT) must be justified. The site/facility must demonstrate alternative methods that can be utilized to meet these functional capabilities, and/or demonstrate that the absence of these capabilities does not affect the ability of the SRT to successfully execute

recapture, recovery, and fresh pursuit operations. Team composition positions, include:

- (1) Assaulter.
- (2) PRFOT member.
- (3) Tactical Entry specialist.
- (4) Assault leader.
- (5) Team commander.

d. SPO-III Selection Criteria. SPO-Is and -IIs may volunteer and/or be selected for SRT duties; however, each individual must also meet selection criteria in order to be assigned as an SRT member. SRT members may be required to meet more or higher qualification standards than those required of SPO-Is and -IIs. Such standards must be in writing and approved by the DOE cognizant security authority. Before being assigned to an SRT, SPO-III candidates must meet the following minimum standards. Candidates must:

- (1) complete training and qualification in those SPO-I and -II job tasks identified in the site-approved training program;
- (2) complete a formal evaluation by site PF management to determine potential to successfully accomplish SPO-III duties and SRT missions;
- (3) be capable of performing the duties and completing the training requirements as specified in Section A, Chapter II, 2.c and Chapter IV, 5;
- (4) be capable of maintaining the offensive combative standard in 10 CFR 1046, *Physical Protection of National Security Interests*;
- (5) successfully complete the DOE SPO-III Basic Qualification Course (BQC); and
- (6) successfully complete any additional site-specific training and qualification that may be required for job performance at a specific site or facility, which is beyond the scope of initial SPO-III training.

3. TRAINING. The formal training program for SPO-IIIs must be in compliance with Section A, Chapter IV.
4. EQUIPMENT. SRT equipment requirements are delineated in Section A, Chapter VI.
5. PROGRAM CERTIFICATION/RECERTIFICATION. SRT programs must be certified initially and recertified annually (at least every 12 months) by the DOE cognizant

security authority. A program is considered certified/recertified when the site has completed the following validations.

- a. All assigned SRT members have met the requirements of Section A, Chapter IV, 4-6.
- b. The DOE cognizant security authority has determined that the site SRT program is in compliance with this Manual and has forwarded documentation of the satisfactory completion of site certification/recertification to the cognizant Departmental element.
- c. All the above can be accomplished during the annual periodic safeguards and security survey (see DOE M 470.4-1, *Safeguards and Security Program Planning and Management*).

CHAPTER IV - TRAINING AND QUALIFICATION

1. PURPOSE. Training must be provided to ensure performance of assigned functions and tasks under both normal and emergency conditions.
2. TRAINING AND QUALIFICATION.
 - a. Federal Officers/Federal Agents/Special Agents. The Department of Energy (DOE) cognizant security authority must establish a formal training and qualification program to meet requirements for Federal Officer (FO), Federal Agent (FA), Special Agent (SA), as applicable to the site/facility. Qualification requirements must be based upon assigned functions, DOE and/or Office of Personnel Management requirements for the position assignment, and this Manual. The requirements are designed to ensure that FOs/FAs/SAs are competent to perform the tasks within their assigned responsibilities. The qualification requirements will be supported by a formal training program that develops and maintains the knowledge, skills, and abilities (KSAs) required to perform assigned tasks. The qualification and training programs will be based on criteria established by the DOE National Training Center (NTC) as outlined in DOE M 470.4-1, *Safeguards and Security Program Planning and Management*, and this Manual. The DOE cognizant security authority must establish additional FO/FA/SA training criteria needed by site-specific requirements. DOE personnel responsible for training FO/FA/SA personnel must prepare and annually (at least every 12 months) review a Job Analysis (JA) detailing the required actions or functions for each specific job assignment. The JA must be used as a basic input document for local training requirements, approved by the DOE cognizant security authority, and reviewed and updated annually (at least every 12 months).
 - b. Contractor Protective Force (PF) Personnel. Contractors responsible for PF personnel must establish a formal qualification program to meet qualification requirements which ensure that PF members are competent to perform the tasks within their assigned responsibilities. The qualification requirements will be supported by a formal training program that develops and maintains the KSAs required to perform assigned tasks. The qualification and training programs will be based on criteria established by the DOE NTC as outlined in DOE M 470.4-1, *Safeguards and Security Program Planning and Management*, Section A, Chapter IV of this Manual; and 10 Code of Federal Regulations (CFR) 1046, *Physical Protection of National Security Interests*. The cognizant security authority must establish additional PF training criteria as needed by site-specific requirements. Departmental contractors, responsible for training PF personnel, must prepare and annually (at least every 12 months) review a JA detailing the required actions or functions for each specific job assignment. The JA must be used as a basic input document for local training requirements, approved by the DOE cognizant security authority, and reviewed and updated annually (at least every 12 months).

- c. Program Requirements. The formal training and qualification program must:
- (1) be based on a valid and complete set of job tasks, with identified levels of skills and knowledge needed to perform the tasks;
 - (2) establish the well-defined level of competency required to perform each task acceptably;
 - (3) employ standardized lesson plans with clear performance objectives as a basis for instruction. Lesson plans in regular use must be reviewed for currency any time training requirements are changed, and must be reviewed and/or revised for currency prior to conducting training;
 - (4) include valid performance-based testing to determine and certify job readiness (i.e., qualification);
 - (5) be documented so that individual and overall training status is easily accessible (individual training records must be retained until 1 year after termination of the employee as a PF member, unless a longer retention period is specified by other requirements); and
 - (6) consider the learning characteristics and entry-level competencies of trainees.

3. SECURITY OFFICERS (SOs).

- a. Training Requirements. Before initial assignment to duty, each person must successfully complete the DOE Basic SO Training Program, as approved by the Director, Office of Security. Additional site-specific training requirements may be included. Site-specific requirements must be based on a site-specific JA and include SO task areas found in Section A, Chapter II, 1, as applicable. The site-specific JA and training requirements must be approved by the DOE cognizant security authority. The SO training program must include, but is not limited to, the following types of instruction:
- (1) Orientation and standards of conduct.
 - (2) Security education and operations, covering classified and sensitive information protection requirements, response to and reporting of incidents of security concern, and the protection of Government property.
 - (3) Safety.
 - (4) Legal requirements and responsibilities.
 - (5) Weaponless self defense.
 - (6) Intermediate force weapons.

- (7) Communications, including methods and procedures.
- (8) Vehicle operations, including safety and routine and emergency operation.
- (9) Post and patrol operations, including site-specific plans, Post and General Orders, policies, and procedures.
- (10) Nuclear materials control and accountability, as applicable.
- (11) Awareness of the types of, and potential deployment of Weapons of Mass Destruction (WMD).

- (12) Donning and use of assigned personal protective equipment.

b. Refresher Training.

- (1) Formal Program. Except as stated in paragraph (3) below, each SO must successfully complete formal annual refresher training to maintain the level of competency required for the successful performance of tasks associated with job responsibilities. The type and intensity of training must be based on a site-specific JA and approved by the DOE cognizant security authority.
- (2) Remedial Training. Failure to achieve the required level of competency must result in placement in a formal remedial training program. The remedial training program must be tailored to provide the necessary training to afford a reasonable opportunity to meet the level of competency as determined by the JA. Failure to demonstrate competency at the completion of the remedial program must result in loss of SO status.
- (3) Training Exemption. Formal annual refresher training may be exempted when an SO satisfactorily demonstrates any KSA (see Chapter II). Such exemption(s) must be documented.

4. SECURITY POLICE OFFICERS (SPOs).

- a. Training Requirements. Before initial assignment to duty, each trainee must successfully complete the DOE Basic SPO Training Program, as approved by the Office of Security. Additional site-specific training requirements must be included. Site-specific requirements must be based on site-specific JAs and must include SPO task areas found in Section A, Chapter II, 2.b., as applicable. The site-specific JA and training program must be approved by the DOE cognizant security authority. The training program must include, but is not limited to, the instruction identified for SOs in paragraph 3.a., of this Chapter, and the following types of instruction:

- (1) Firearms training, including safety, marksmanship, and manipulation skills, with all weapons reasonably expected to be employed.
- (2) Orientation and standards of conduct.
- (3) Physical fitness training.
- (4) Facility operations familiarity.
- (5) Nuclear materials control and accountability, as applicable.
- (6) Safety.
- (7) Legal requirements and responsibilities, including use of deadly force, limited arrest authority (see 10 CFR 1047, *Limited Arrest Authority and Use of Force by Protective Force Officers*, and 1049, *Limited Arrest Authority and Use of Force by Protective Force Officers of the SPR*), and fresh pursuit (see Section A, Appendix A-1).
- (8) Tactical training, including individual and appropriate team tactics and use of assigned tactical equipment.
- (9) Weaponless self defense and intermediate force weapons.
- (10) Communications, including methods and procedures.
- (11) Vehicle operations, including safety, routine, emergency, and pursuit operation.
- (12) Post, patrol, and response operations including site-specific protection strategies, plans, POs, General Orders (GOs), policies, and procedures.
- (13) Procedures and requirements for investigations including the search of persons and property for evidence and recognition, seizure, and preservation of evidence.
- (14) The Design Basis Threat (DBT) and potential adversaries' characteristics, tactics, and motives.
- (15) Actions required of first responders to WMD incidents.

b. Refresher Training.

- (1) Formal Program. Except as stated in paragraph (3) below, each SPO must successfully complete formal annual refresher training to maintain the level of competency required for the successful performance of tasks associated with job responsibilities. The type and intensity of training

must be determined by a site-specific JA and approved by the DOE cognizant security authority.

- (2) Remedial Training. Failure to achieve the required level of competency will result in the SPO's placement in a remedial training program. The remedial training program must be tailored to provide the necessary training to afford a reasonable opportunity to meet the level of competency required by the JA. Failure to demonstrate competency at the completion of the remedial program must result in loss of SPO status.
- (3) Training Exemption. Except for firearms and physical fitness requirements and training in the areas of protection strategies, use of force, pursuit driving, individual and team tactics, and chemical biological weapons (CBW), portions of formal annual refresher training may be exempted when an SPO satisfactorily demonstrates a knowledge, skill, or ability. Such exemption(s) must be documented in the individual's training record.

5. SPO-IIIs.

- a. Prerequisites. Before attending the DOE SPO-III Basic Qualification Course, each SPO must:
 - (1) train and qualify in those SPO-I and -II job tasks identified in the site-approved training program;
 - (2) successfully complete any and all SPO-II training and qualification that may be required for site-specific SPO-III job requirements;
 - (3) successfully meet the offensive combative standard in 10 CFR 1046;
 - (4) qualify with all weapons reasonably expected to be used by a SPO-III on duty, on the applicable DOE firearms qualification courses in Section C and, where applicable, approved site-specific firearms qualification courses;
 - (5) successfully complete a site-specific tactical obstacle course.
- b. Training Requirements. Before initial assignment to duties as an SRT member, an SPO must successfully complete the DOE SPO-III Basic Qualification Course. Additional site-specific training requirements must be included and be based on a site-specific JA. The site-specific JA and training program must be approved by the DOE cognizant security authority. The SPO-III training program must include the requirements identified for SPO-Is and -IIs in paragraph 4.a., of this Chapter, and the following:
 - (1) Live-fire shooting-on-the-move techniques; one-hand handgun manipulation and malfunction clearing techniques; semi- and

full-automatic fire with appropriate firearms (where applicable); individual and team tactics in a live-fire shoot house (LFSH); and qualification with assigned duty weapons;

- (2) Close Quarters Battle (CQB) training, including live-fire team operations in stronghold and emergency assaults under both day and night conditions in an LFSH;
- (3) small-unit tactics, including team and individual movement techniques under both day and night conditions;
- (4) mobile and open-air assaults including live-fire team operations under both day and night conditions;
- (5) a tactical obstacle course that tests physical fitness and marksmanship skills;
- (6) decisional shooting techniques including shoot/no-shoot scenarios;
- (7) use and deployment of diversionary devices; and
- (8) use of tactical equipment deployed in support of Special Response Team (SRT) operations (e.g., night-vision devices [NVDs], range finders, global positioning systems, ladders, video systems, and ascending/descending systems).

c. Specialized Training. Team members may volunteer and/or be selected for specialized SPO-III duties for which the following requirements must be met.

- (1) Precision Rifleman Forward Observer Team (PRFOT) Training. Before initial assignment to duty as a PRFOT member, each assigned SPO-III must successfully complete the DOE PRFOT training course approved by the Office of Security. Thereafter, on a quarterly basis, each PRFOT member must participate in live- and dry-fire proficiency training. Live- and dry-fire proficiency training must be integrated into and conducted in conjunction with SRT training via controlled use of force, tactical movement training, and night operations.
- (2) Tactical Entry (TE) Specialist Training. Before initial assignment to TE specialist duties, each SPO-III assigned must successfully complete the DOE Basic TE Course approved by the Office of Security. Thereafter, each specialist must participate quarterly in proficiency training that includes mechanical entry techniques. Before conducting explosive TE operations, specialists must successfully complete an explosive TE course approved by the Office of Security.

d. Maintenance Training. After assignment to duties as a member of an SRT, an SPO-III must, at a minimum, train semi-annually (at least every 6 months) in all

of the following: decisional shooting, CQB, LFSH operations, tactical obstacle course, night operations, team tactical movement, and force options (i.e., open air, mobile, emergency, and stronghold assaults). Requirements for semi-annual maintenance training may be satisfied through combined training of two or more of these areas.

e. Refresher Training.

- (1) Formal Program. Except as stated in paragraph (3) below, each SPO-III must successfully complete formal annual (at least every 12 months) refresher training to maintain the level of competency required for the successful performance of tasks associated with SPO-III job responsibilities and assigned special skills. The type and intensity of training must be based on a site-specific JA and approved by the DOE cognizant security authority.
- (2) Remedial Training. Failure to achieve the required level of competency must result in the SPO-III's placement in a formal remedial training program. The remedial training program must be tailored to provide the SPO-III with the necessary training to afford an opportunity to meet the level of competency determined by the JA. Failure to demonstrate competency at the completion of the remedial program must result in loss of SPO-III status.
- (3) Training Exemption. Portions of formal annual (at least every 12 months) refresher training may be exempted when a SPO-III satisfactorily demonstrates a KSA. Such exemption(s) must be documented in the individual's training record. The following requirements may not be exempted: firearms and physical fitness qualifications, protection strategies, force options, pursuit driving, individual and team tactics, special skills, CQB, and CBW training.

f. Site SPO-III Training Certification. For a site to be authorized to conduct the DOE SPO-III Basic Qualification Course (BQC) on-site, the DOE NTC must determine and certify the site's capability to conduct the course and meet all applicable SPO-III training requirements. Such determination will be accomplished through the use of a standard evaluation system/format developed by the DOE NTC. Such certification will be valid for 3 years. This certification is automatically revoked when it has been determined that the on-site course does not meet requisite training requirements. This determination may be made through various means (e.g., results of annual site SRT program certification/recertification reviews, annual and/or special safeguards and security (S&S) surveys/self-assessment activities, or Office of Independent Oversight and Performance Assurance inspections). The cancellation will remain in effect until the site is found to be in compliance with the requirements.

6. WEAPONS QUALIFICATIONS. SPOs must qualify semi-annually (at least every 6 months), with all assigned weapons and special skills weapons (as designated by job assignment or SRT position) using the DOE daylight and reduced lighting qualification and other applicable (e.g., shooting-on-the move and LFSH) courses in Section C. (10 CFR 1046, Subpart B, *Protective Force Personnel*) Where DOE firearms qualification courses do not exist or do not cover site-specific deployment of a weapons system (e.g., belt-fed machine gun, grenade launcher, aerial firing platform, executive protection, etc.), both daylight and reduced lighting site-specific supplemental qualification courses must be developed by the cognizant security authority and submitted to the Associate Administrator for Defense Nuclear Security or the Director, Office of Security, for review and approval, as appropriate.
7. SPECIAL SKILLS. Personnel assigned specialized responsibilities outside the scope of normal SO, SPO, and SRT duties must successfully complete the appropriate basic, refresher, and periodic training. This training must be designed to enable the individual to achieve and maintain the level of skill and knowledge needed to competently perform the tasks associated with the specialized job responsibilities and to maintain mandated certification, if applicable. Such personnel include, but are not limited to, flight crews, instructors, armorers, Central Alarm Station operators, crisis negotiators, investigators, canine handlers, exercise controllers/evaluators, and law enforcement specialists. The scope of such duties and the type and intensity of such specialized training must be based on site-specific JAs and needs and must be approved by the DOE cognizant security authority. When certification is required for special skill positions and the certification requirements have not been established by the NTC, then site-specific certification procedures must be approved by the DOE cognizant security authority.
8. SUPERVISORS. PF personnel who are assigned supervisory responsibilities must successfully complete the appropriate basic and annual training necessary to achieve and maintain the level of skill and knowledge required to competently perform their responsibilities. The required tasks and levels of competency must be based on a site-specific JA and the specialized task areas listed in Chapter II, paragraph 7.
9. INSTRUCTORS. All PF personnel assigned instructor duties must be currently certified to the level of training delivered.
 - a. Certification Requirements. At a minimum, the following instructor certification requirements must be met.
 - (1) Each instructor assigned to deliver training must successfully complete the DOE Basic Instructor Training Course, as approved by the Office of Security, or an equivalent Office of Security recognized basic instructor course.
 - (2) Each instructor assigned to deliver firearms training must successfully complete the DOE Firearms Instructor Certification (FIC) Course, as approved by the Office of Security, for the level of firearms training delivered.

- (3) Each instructor assigned to deliver intermediate force training will successfully complete the DOE Intermediate Force Instructor Certification (IFIC) course, as approved by the Office of Security.
 - (4) Each instructor assigned to deliver ground control training will successfully complete the DOE Ground Control Instructor Certification (GCIC) course, as approved by the Office of Security.
 - (5) Each instructor assigned to deliver the SPO-III BQC must successfully complete the DOE SPO-III Instructor Certification (IC) Course, as approved by the Office of Security, and any other Office of Security approved courses for the level of instruction delivered (e.g., PRFOT Instructor and LFSH Instructor Certification Courses).
 - (6) To maintain certification, instructors must instruct in at least two classes or two course iterations, or a combination of both, per calendar year. Documentation of these activities must be maintained in the individual's training record.
- b. Recertification. The following minimum PF instructor recertification requirements must be met.
- (1) PF management must ensure that each instructor is evaluated for competency at least once every 36 months.
 - (2) The instructor evaluation must consist of verification of the following.
 - (a) Instructor knowledge of:
 - 1 Office of Security-approved teaching methods and instructional techniques;
 - 2 applicable assigned subject/topical areas for the level of instruction delivered; and
 - 3 requirements for developing course objectives, lesson plans, training aids, and student evaluations.

NOTE: Verification of compliance with the requirements in paragraphs 1 and 2, above, must consist of observation of instructor performance during actual curriculum delivery or by performance testing activities.
 - (b) Skill in presenting a complete instructional lesson plan/course.

- (c) Verification of instructor attendance in at least one professional development course, approved by the DOE cognizant security authority in the instructor's respective subject matter area (e.g., factory firearms instructor, diversionary devices instructor, or CBW instructor) during the 36 month period.
10. FIREARMS INSTRUCTORS. Before initial assignment to duty as a firearms instructor, personnel must successfully complete the DOE Basic FIC Course.
 - a. Prerequisite Training. Before attending the FIC Course, PF personnel must successfully do the following:
 - (1) demonstrate proficiency with a 90 percent score within two attempts on the DOE Daylight Handgun and Semi-Automatic Rifle Qualification Courses on the first day of the course;
 - (2) complete all applicable handgun and rifle Limited Scope Performance Tests (LSPTs) as contained in respective NTC firearms lesson plans with 100 percent accuracy;
 - (3) complete the DOE Basic Instructor Training Course.
 - b. Refresher Training. Each firearms instructor must successfully complete formal annual refresher training to maintain the level of competency required for the successful performance of tasks associated with firearms instructor responsibilities. The type and intensity of training must be based on a site-specific JA and approved by the DOE cognizant security authority.
 - c. Recertification. The following DOE Firearms Instructor recertification requirements must be met:
 - (1) pass a comprehensive, knowledge-based, site-specific evaluation on live-fire range operations every 12 months;
 - (2) complete LSPTs every 12 months with a minimum score of 100 percent for each firearm system instructed;
 - (3) conduct at least one site-specific safety briefing every 12 months;
 - (4) qualify every 12 months with a minimum score of 80 percent for each firearms system instructed; and
 - (5) be assigned to and conduct the duties of either a lead instructor, line instructor, or range safety officer twice annually (at least twice every 12 months).

11. INTERMEDIATE FORCE AND GROUND CONTROL INSTRUCTORS. Before initial assignment to duty as intermediate force instructors and ground control instructors, personnel must successfully complete the DOE Basic IFIC course and/or GCIC course.
 - a. Prerequisites. Before attending the IFIC and GCIC courses, PF personnel must successfully do the following:
 - (1) Complete the DOE Basic Instructor Training Course; and
 - (2) Meet medical/fitness requirements.
 - b. Refresher Training. Each intermediate force and ground control instructor must successfully complete formal annual refresher training to maintain the minimum level of competency required for the successful performance of tasks associated with intermediate force and ground control instructor responsibilities. The type and intensity of training must be based on a site-specific JA and approved by the DOE cognizant security authority.
 - c. Recertification. The following DOE Intermediate Force Instructor recertification requirements must be met:
 - (1) pass a comprehensive knowledge-based, site-specific evaluation on the intermediate force operations every 24 months;
 - (2) complete LSPTs every 12 months with a minimum score of 100 percent for each intermediate force technique instructed;
 - (3) conduct at least one site-specific safety briefing every 12 months;
 - (4) be assigned to and conduct the duties of either a lead instructor or an assistant instructor every 12 months.
12. FOs, FAs, and SAs. Federal personnel designated as FOs/FAs/SAs must be trained in accordance with the requirements established by DOE and/or the Office of Personnel Management. FO and SA training must be consistent with standards established for SPOs.
13. TRAINING EXERCISES. Exercises of various types must be included in the training process for the purposes of achieving and maintaining skills and assessing individual and team competency levels. The types and frequency of training exercises must be based on the training needs analysis and approved by the DOE cognizant security authority. The following elements must be included in the training exercise program.
 - a. Exercises involving each PF shift and each SRT shift on fixed sites must be conducted monthly. These exercises must be planned and conducted to provide site-specific training to the PF in preventing the success of potential adversarial acts defined in the DBT and the approved site-threat statement.

- b. The DOE cognizant security authority must request the Federal Bureau of Investigation (FBI) and other Federal, State, and local law enforcement agencies (LEAs) that would assist the PF during a site security incident to participate in training exercises at least every 12 months.
 - c. Reports of each training exercise, summarizing results and problems areas, must be prepared for management review and to aid in planning PF activities, developing corrective actions, and in the training needs analysis process.
 - d. Sites possessing Category I special nuclear material (SNM), Category II SNM with credible roll-up to Category I, and radiological, chemical, biological targets must plan and conduct a Force on Force (FoF) training exercise involving a WMD scenario at least every 36 months. Where possible, this exercise should involve joint interagency national-level participation (e.g., the FBI, Federal Emergency Management Agency, or State emergency management agencies, as applicable). The Office of Security will serve as the focal point for liaison with national level agencies to promote their participation.
14. NON-DOE TRAINING COURSES. Attendance by PF personnel at non-DOE Government or private training courses must be approved by the DOE cognizant security authority. Such courses must have clearly defined learning objectives and contribute to the job-related KSAs of the FO/FA/SA/SPO assigned to attend. Records of training provided at other Government or private facilities must be obtained and maintained. [DOE M 470.4-1, *Safeguards and Security Program Planning and Management*].

CHAPTER V - SECURITY HELICOPTER FLIGHT OPERATIONS

1. PURPOSE. The primary purpose for security helicopter flight operations is to provide timely and effective aerial response to a security incident. Department of Energy (DOE) security helicopters may be used for response force (i.e., protective force [PF], Special Response Team [SRT], and Federal, State, and local law enforcement agency [LLEA] personnel) transport, command, control, communications, surveillance, and as a firing platform when required.
2. OPERATIONAL REQUIREMENTS.
 - a. General. Helicopters employed in support of security operations provide an airborne dimension to response force capabilities against a threat posed by adversaries who may attempt theft or sabotage of nuclear weapons or special nuclear material (SNM) and/or sabotage of vital facilities and equipment. The decision to use security helicopters is based on site-specific considerations with concurrence of the cognizant DOE organization or Administrator, National Nuclear Security Administration (NNSA). Requirements for helicopter operations are covered in DOE O 440.2B, *Aviation Management and Safety*. Site-specific security helicopter operational mission requirements must be documented in a site-specific Aviation Implementation Plan (AIP). The AIP must be approved by the DOE cognizant security authority.
 - b. Mission Readiness. To meet mission requirements, a security helicopter must be fully operational and ready to respond to a security emergency with a 90 percent availability rate, excluding weather conditions.
 - c. Emergency Security Helicopter Operations. During a security incident, helicopters may be employed to transport, insert, and relocate response forces to and from the scene of a security incident or staging area, as directed by the senior on-scene commander and/or by standard operating procedure. Additional emergency response functions must be fully documented in an AIP and may include, but are not limited to: directed fire; command, control, communications, surveillance; resupply; and support of facility/site protection strategies including recapture, recovery, and fresh pursuit operations.
 - d. Routine Security Helicopter Operations. Routine helicopter operations may include the following:
 - (1) pilot proficiency, training, and testing program;
 - (2) training for emergency response, tactical insertion of PF personnel, and observation and pursuit of airborne and ground intruders;
 - (3) site surveillance, search, and observation;
 - (4) transport of PF personnel;

- (5) escort of convoys transporting SNM; and
 - (6) command, control, and communications of ground security activities in routine operations.
- e. Special Use of Security Helicopters. Such use must be based on site-specific mission requirements, which are approved by the DOE cognizant security authority and documented in an AIP.
3. RULES OF ENGAGEMENT IN USE OF HELICOPTERS AS FIRING PLATFORMS. Firing from a helicopter can be a viable and effective means of supporting security operations, and the AIP may incorporate aerial firing under the following conditions:
- a. Authority to include aerial firing in response plans must be granted only following development of site-specific rules of engagement that are consistent with DOE policy on the use of force.
 - b. Firing must be done only by specifically trained and qualified SRT personnel with weapons attached to gun mounts that provide field-of-fire limitations.
 - c. A Safety Analysis Review (SAR) of aerial firing must be completed. The SAR must be reviewed for currency any time aerial firing requirements are changed, but at least every 12 months.
 - d. The cognizant DOE safety officer approves, in writing, the technical and operational procedures and SAR for aerial firing.
 - e. The DOE line management is the final approval authority at each site. Copies of the approved technical and operational procedures for aerial firing must be provided to the Senior DOE Aviation Management Official; the cognizant Departmental element or the Administrator, NNSA; and the Office of Security.
 - f. Site-specific aerial firing qualification and/or familiarization course(s) must be developed and submitted, through the DOE cognizant security authority to the Office of Security, for review and approval.

CHAPTER VI - EQUIPMENT AND FACILITIES

1. **EQUIPMENT.** Protective forces (PFs) must be equipped and provided with the necessary resources to effectively, efficiently, and safely perform both routine and emergency duties. Equipment must be tailored to counter adversaries identified in the Department of Energy (DOE) Design Basis Threat (DBT) and site-specific threat guidance or as specified in the site security plan (SSP) or the Site Safeguards and Security Plan (SSSP). Equipment must be available in sufficient quantities and properly maintained to support the PF mission.
 - a. **Uniforms.** Contractor PF personnel must be distinctively uniformed while on duty and be identified with their function by appropriate emblems or badges. The uniform must enhance performance of both routine and emergency duties and must promote a professional image.
 - (1) Security Officers (SOs) must wear uniforms that conform to site standards with respect to assigned duties and posts (e.g., SOs assigned to interior administrative posts may wear non-field-type uniforms, while SOs assigned to exterior posts may wear field-type uniforms).
 - (2) Security Police Officer (SPO) and Special Response Team (SRT) uniforms must conform to site standards that enhance SPOs' abilities to respond to and resolve security incidents.
 - b. **Duty Equipment.** The equipment issued to PF personnel must be determined by assigned duties on a site-specific basis. At a minimum, the following duty equipment must be provided.
 - (1) SOs. Each SO must be assigned, and be required to carry while on duty, a portable radio with carrier and a flashlight with carrier. The issuance of additional equipment, such as intermediate force weapons, must be determined by assigned duties on a site-specific basis.
 - (2) SPO-I, -II. Each SPO must be assigned, and be required to carry while on duty, a handgun and ammunition, a holster (of a secure type), an ammunition carrying device of sufficient capacity, a portable radio with carrier, handcuffs (with case) or other restraining devices, an intermediate force weapon (with case, if applicable), and a flashlight with carrier. The issuance of any additional equipment items must be determined by assigned duties on a site-specific basis. Equipment must be secured to the SPO so that it is easily accessible and does not hamper tactical movement.
 - (3) SPO-III. Each SPO-III must be assigned a rifle, handgun and ammunition, a holster (of a tactical type), an ammunition carrying device of sufficient capacity, fire-resistant hood and gloves, a flashlight with carrier, goggles/eye protection, tactical boots, a chemical/biological weapons

(CBW) mask with carrier, handcuffs with case and/or other restraining devices, and equipment designed to accommodate the duty functions (e.g., tactical vests).

- (4) SRT Equipment. Equipment must be selected to facilitate the ability of the SRT to safely perform both normal and emergency response duties. In general, team equipment must be provided to facilitate and hasten a rapid response, be operable in all local weather conditions, allow for transfer of reliable communication and information, and assist in the detection of adversaries under all light conditions. Site-specific equipment relevant to the accomplishment of site-specific mission requirements must also be made available. Precision Rifleman Forward Observer Team members, Tactical Entry specialists, SRT commanders, and assault leaders each may require additional specialized equipment to meet mission requirements. Sites must ensure that all necessary specialized individual and team equipment needs are met and maintained.
- (5) Alternative to Deadly Force. Armed PF personnel must be assigned equipment that provides an alternative (i.e., intermediate force), in the appropriate circumstances, to the use of deadly force (e.g., side-handle or collapsible baton or chemical agents).
- (6) Non-Lethal Area Weapons. Non-lethal area weapons such as chemical agents must be of the type commensurate with the intended use and must not pose danger to personnel or facilities beyond that required for the success of the PF mission. Chemical agents must not be kept in active inventory past their expiration dates.
- (7) Personal Protective Armor. Personal protective armor must be readily available for SPO-II and -III personnel. Protective armor must be worn by SPOs or be stationed or positioned in such a manner to be quickly donned in support of response requirements without impact to response times. Protective armor for SPO-II personnel must provide at least Type III-A protection level, as established by National Institute of Justice (NIJ) Standard 0101.04A (6/01). Protective armor for SPO-III personnel must provide at least Type III protection level, as established by NIJ Standard 0101.04A.
- (8) Tactical Vests. Tactical vests must be readily available for use by SRTs and other designated personnel. They must be designed to accommodate the duty functions of the wearer and enhance effectiveness.
- (9) Protective Masks. Protective masks must be available for SPO-I, -II, and -II personnel, and Federal Agents (FAs) (i.e., they must be carried by personnel or be stationed or positioned in such a manner to be quickly donned in support of response requirements without impact to response times). Protective masks must be of a type that does not unduly hinder

performance of emergency duties, including accurate firing of all assigned firearms, and must be individually fit-tested. They must be rated for radiological/biological/chemical protection.

- (10) Chemical Protective Equipment. To ensure appropriate analysis and implementation, deployment and use of chemical protective equipment must be documented in the facility SSSP. The SSSP must document the rationale for equipment selection, deployment, and use of chemical protective equipment to address detection and response. PF procedures for the use of chemical protective equipment must be approved by the DOE cognizant security authority.
- (11) Optical Devices.
 - (a) Corrective Lenses.
 - 1 Eyeglasses worn by PF personnel must be made of safety glass and meet American National Standards Institute (ANSI) Z87.1 standards.
 - 2 SPOs whose uncorrected distant vision in the better eye is less than 20/40 must carry an extra pair of eyeglasses or corrective lenses.
 - (b) Observation Devices. Binoculars must be available for use to permit observation and detection of unauthorized activity and to aid in the conduct of response operations both day and night. At facilities possessing Category I and II special nuclear material (SNM), Night Vision Devices (NVDs) must be available for use to permit observation and detection of unauthorized activity and to aid in the conduct of response operations during reduced light conditions.
 - (c) Protective Mask Optical Inserts. Personnel whose uncorrected distant vision in the better eye is less than 20/40 must be provided with corrective lens inserts that can be accommodated by the issued mask.
- (12) Batteries. A sufficient number of batteries for equipment (e.g., radios, hand-held metal and SNM transfriskers (detectors) and monitors, flashlights, cameras, and NVDs) must be available and maintained in a charged condition to support routine, emergency, and response operations.
- (13) Equipment Storage. Individual, special-purpose, and duty equipment must be stored and/or carried so it is readily available in sufficient numbers for use in its intended fashion according to approved PF response plans, Post Orders (Pos), General Orders (GOs), and procedures. Adequate and

secure storage space must be available for all individually carried equipment.

- (14) **Equipment Maintenance.** Equipment must be maintained in a serviceable condition, in keeping with generally accepted practices for the particular type of equipment. Preventive maintenance must be conducted and records maintained.

(15) **Vehicles.**

(a) **Type.** Vehicles must exhibit a degree of reliability commensurate with their intended function. Vehicles must enhance the efficiency, speed, and safety of both routine and emergency duties under all expected weather conditions. Vehicles must be of a type and size suitable for the intended use and, in the case of armored vehicles, offer assurance of continued operation and a safe level of protection to occupants under small arms fire, up to and including North Atlantic Treaty Organization 7.62 millimeter full-metal jacket. Vehicles must be distinctly marked and equipped with necessary emergency response equipment (e.g., external warning lights, sirens, radios, and spotlights).

(b) **Maintenance.** Vehicles must be maintained in serviceable condition, with preventive maintenance performed at intervals that meet or exceed the manufacturer recommendations. Vehicle maintenance records must be maintained as long as the vehicle is used to support the PF mission.

(c) **Inspection.** Vehicles must be inspected at the beginning of each shift to ensure they are in safe, operating condition. At a minimum, the following must be inspected and found to meet safe operating requirements: horn; tires; lights, including emergency response lights, when applicable; and brakes, including parking brake.

(16) **Communications Equipment.**

(a) **Basic Requirements.** Communications equipment must provide multi-channel capability with clear transmissions. It must also exhibit the necessary degree of reliability commensurate with its intended use. Communications equipment must be readily available in sufficient numbers to equip PF personnel. Duress alarms must be provided at all PF posts. Duress alarm requirements may be met through the use of either portable radios equipped with duress capabilities or fixed duress systems.

(b) Special Requirements.

- 1 Facilities Containing Category I or II Quantities of SNM. Fixed PF posts must have both normal telephone service and two-way radio communication with the Central Alarm Station (CAS)/Secondary Alarm Station (SAS), and other locations from which forces may be dispatched. Administrative controls must be established to ensure proper use of this system in an emergency.
- 2 SRTs. SRTs must be equipped with digital encryption two-way radio communication. Dedicated channels for SRT operations must include separate SRT elements (e.g., tactical operations center, crisis negotiations, and precision rifleman/forward observer team PRFOT channels).
- 3 Tests. Daily tests of communication systems must be conducted. If equipped with duress capabilities, the duress system must be tested weekly. Fixed duress systems must also be tested weekly.

2. FACILITIES.

- a. Permanent Posts. Permanent (routine and emergency duty) PF posts that control access to areas containing nuclear weapons, nuclear test devices, complete nuclear assemblies, or Category I or II quantities of SNM must meet the following requirements.
 - (1) Location. The posts must be located so that the efficiency of routine duties is enhanced, the likely routes of adversary ingress and egress are clearly observable, and protected routes or methods of approach are available to personnel.
 - (2) Human Factors Requirements. The posts must provide adequate human engineering so that personnel can perform their duties efficiently. Routine duty fixed posts should provide occupants with protection from weather and temperature conditions and facilities to meet personal hygiene needs. Supervisors must ensure personnel assigned to fixed posts without personal hygiene facilities are provided regular relief from post duties to visit such facilities at another location.
 - (3) Exterior Construction. Exterior walls, windows, and doors must be constructed of, or reinforced with, materials that have a bullet-penetration resistance equivalent to the "high-power rifle" rating given in Underwriter Laboratories Standard 752, *Bullet-Resisting Equipment*.

- (4) **Lighting.** Lighting must be capable of providing a minimum of 2-foot candles luminescence at ground level for at least a 30-foot diameter circle around the post and 0.2 foot-candles for at least 150 feet in all directions.
- (5) **Vehicular Access Control.** Where automated gates are used to control vehicular access to a security area, the gates and openings must be visible to the gate control operator and constructed to permit gate operation from inside the post.
- (6) **Training Facilities.** Training facilities must be sufficient to conduct realistic PF training and qualification programs safely. This includes facilities for SPO-I, -II, and -III and Federal Officer/Federal Agent/Special Agent (where applicable) weapons and physical fitness training, qualifications, and maintenance, special skills, and site-specific training and qualifications. The use of local, State, and Federal law enforcement agencies and Department of Defense (DoD)/National Guard training facilities is an acceptable alternative to DOE-owned facilities, as long as required DOE certifications and safety requirements are maintained. A Memorandum of Understanding delineating such use must be completed by the DOE cognizant security authority and approved by DOE line management. [See DOE O 440.1A, *Worker Protection Management for DOE Federal and Contractor Employees*, and DOE-STD-1091-96, *Firearms Safety*.]

CHAPTER VII - PERFORMANCE TESTING

1. PERFORMANCE TESTS (PTs). PTs must be used to realistically evaluate and verify the effectiveness of protective force (PF) programs, identify needed training and provide training for personnel, identify areas requiring system improvements, validate implemented improvements, and motivate personnel. Such tests must adhere to the requirements found in DOE M 470.4-1, *Safeguards and Security Program Planning and Management*, and in this Chapter. All major PF functions must be tested. The following are the major types of PF PTs.
 - a. Limited Scope Performance Test (LSPTs). LSPTs may be either scheduled or unannounced. The tests must be used to determine the level of PF skill or capability or to verify different elements of the PF program. LSPTs must be conducted to realistically test any operation or procedure, verify the performance of a policy requirement, or verify possession of a requisite knowledge or skill to perform a specific task that falls within the scope of PF responsibility. The tests may involve large numbers of PF personnel working together, or they may involve an individual or a small team. When individuals or small teams are tested, repetitions of the test may be conducted with each individual or team. Examples of these tests include individual and team tactical movement, defensive and offensive positioning, arrest and control techniques, building clearing, handling civil disturbances, containment operations, command and control activities, implementation of protection strategies, or any individual components of these activities. Any element of PF responsibility, as determined by site procedures and job analysis, may be tested. LSPTs may involve the use of dedicated engagement simulation systems (ESS) (multiple integrated laser engagement system [MILES]), dye-marking cartridge [DMC], blank-fire, or inert systems, and such use must meet the operational and safety requirements involving the conduct of Force on Force (FoF) exercises in paragraph 1.c., below, where applicable.
 - b. Alarm Response and Assessment Performance Test (ARAPT). An ARAPT is conducted with no prior notice to evaluate PF response to a specific location under alarm protection (i.e., a building, vault/vault-type room, or other area that has a site-specific security interest identified in the site security plan [SSP] or Site Safeguards and Security Plan [SSSP]). ARAPT scenarios must be based on simulated adversary actions consistent with the DOE Design Basis Threat (DBT) and site-specific Vulnerability Assessment (VA) results. The purpose of these tests is to evaluate PF readiness and response to alarm conditions. These tests must consider all aspects of response including communications, personal protective measures, equipment availability and serviceability, and any PF and facility coordination activities that may be necessary to mitigate a security incident. ARAPTs must be coordinated with facility representatives and trusted agents (TAs) to ensure that safety requirements are fulfilled, security is not compromised, and operational disruption is minimized. When an ARAPT is

initiated, responding PF personnel must be advised of the test. Handguns must be holstered, and auxiliary weapons must not have a round in the chamber.

- c. FoF. A FoF exercise is a major test of the overall effectiveness of protection elements involved in response to the DBT and site-specific threats and is used also to validate site-specific protection strategies. Annual (at least every 12 months) FoF exercises must be held at all facilities meeting the requirements for an armed PF. Scenarios must include the characteristics of the various adversary weapons, equipment, number of adversary personnel, and methodologies as identified in the DBT. Scenario content must be controlled on a strict need-to-know basis to foster realistic exercise activities and evaluation. Exercises must be planned, announced in advance to all participating parties, and conducted during specified time periods. Personnel must be designated and briefed in advance to act as adversaries. All weapons used by exercise participants must be dedicated ESS weapons. For this reason, if an exercise involves an operating facility as opposed to a test area, a PF “shadow force” must be deployed for protection of the safeguards and security (S&S) interests. Interface procedures, including rules of conduct for all participants, controller actions, exercise boundaries, and off-limit areas must be developed and documented. Procedures for communication between the simulated and shadow forces must be developed to ensure no compromise of S&S during the exercise. All exercise participants, controllers, and the shadow force must be briefed on the interface and communication procedures.
- d. Command Post Exercise (CPX). A CPX is conducted to observe and evaluate a crisis management team’s overall handling of simulated safeguards and/or security or a natural disaster incident. A CPX may involve a local Emergency Operations Center (EOC) or multiple centers, including the DOE HQ EOC. CPXs may be either announced or unannounced and may vary in scope and time, as dictated by the purpose of the exercise. A security-related CPX must be based on the DBT and the site-specific threat. The CPX must be used to evaluate both tactical and technical assessments and decisions. Lines of authority, the interrelationship of various organizational components in crisis mitigation, and the timeliness of reporting and decision making must be considered in the overall evaluation. Facility and equipment availability must also be evaluated.
- e. Command Field Exercise (CFX). A CFX is an extension of a CPX and is conducted to test the interaction among various support organizations, site management, and the PF to a simulated incident. Procedures, tactical intelligence, communications, logistics, and the interfaces between Federal and contractor support systems are the focus of a CFX. Such exercises must be planned and announced in advance to all participating personnel. They may be combined with FoF exercises.
- f. Joint Training Exercise (JTX). When a VA or performance test indicates a need for outside agency support for the successful mitigation of a security incident, and such support is properly documented in the SSSP, the support expected from

outside agencies must be covered by a formal MOU. JTXs must be conducted annually (at least every 12 months) and consist of an FoF exercise with these agencies to determine the agencies' abilities and capabilities to respond to site threats, as documented in the SSSP and agreed to in the MOU. Annual exercises with outside agencies must include scenarios involving required site/facility protection strategies, including recapture, recovery, and pursuit, as applicable. The frequency of testing outside resources beyond the annual FoF exercise requirement must be based on the degree of support anticipated and approved by the DOE cognizant security authority.

2. PERFORMANCE TEST (PT) AND TRAINING ACTIVITIES PLANNING.

a. Performance Test and Training Activity Plans. The PT plan and training activity plan (or lesson plan, procedures, etc.) must define the scenario/activity and the exercise/training area in sufficient detail to allow a valid hazard assessment to be performed. The following additional information must be included in a PT/training plan involving the use of ESS, as applicable:

- (1) personnel safety and health requirements;
- (2) vehicle safety;
- (3) storage, handling, and the safe use of firearms, ammunition, and ESS equipment;
- (4) facility security to include shadow force operations; and
- (5) other applicable considerations which may be necessary as identified in the governing risk assessment(s).

NOTE: Where applicable, approved safety and ESS procedures may be referenced in the PT plan and training plan and are not required to be restated in their entirety unless required by local implementing procedures.

b. S&S Planning. As applicable, planning must address the following topics:

- (1) the "specific element being tested" to identify the specific element of the SSP or SSSP, training program, etc., that is being evaluated;
- (2) the "objective(s) of the test," e.g., to evaluate personnel, equipment, and systems against established requirements;
- (3) the "scenario" designed to ensure that the objectives of the test are met. The adversary plan must be validated as credible by the DOE cognizant security authority and the TAs. This validation includes all aspects of conducting the attack;

- (4) the “applicable pass/fail criteria” to describe the standards for evaluation as derived from applicable lesson plans and SSP/SSSP requirements;
 - (5) the “specific safety considerations” consisting of a safety plan that contains information derived from the risk assessment, the facility safety walk down, and specific safety requirements that may apply to the PT or training being conducted. General safety considerations may be addressed by referring to approved PT procedures on file;
 - (6) the “specific S&S considerations” section to include information such as required compensatory measures that are in place during the PT;
 - (7) the “test results documentation and after action reviews” section to include a summary of controller and evaluator information and conclusions derived from this information. A process must be in place to allow for after-action reviews by appropriate personnel as determined by the cognizant security authority; and
 - (8) a classification review of the PT plan, documentation of the PT results, and completion of an after-action report.
- c. Force-on-Force Exercise Plans. The following areas must be considered and included, as applicable, in the development of a typical FoF plan or for an LSPT involving the use of ESS.
- (1) Objective(s). The objective(s) must be stated succinctly. This will consist of a concise statement of the goal(s), such as to evaluate against established requirements, to enhance preparedness through training, and/or to evaluate potential upgrades to systems or equipment.
 - (2) Scenario Description.
 - (a) Describe the Threat Scenario. Define the target and the threat to provide an understanding of the nature of the exercise. Specific information in this area may be classified.
 - (b) Describe the Facility(ies) Involved. Establish the exercise boundaries and provide clear indication of the exercise area, the facilities involved, and out-of-bounds areas/limits.
 - (c) Define the Required PF Response. Provide a description of the desired PF response to adversarial actions. This may entail citing the applicable existing response plan or a standing operating procedure. Specific information may be classified.
 - (d) Establish the Schedule. Define PT initiation, time/date, and schedule of events. Specific information in this area may be classified.

- (3) Test Methodology.
 - (a) State how the exercise/validation will be conducted.
 - (b) Identify the number of PT, exercise and/or event iterations to be conducted.
 - (c) Identify required pre/post-exercise briefings. (See example provided in Appendix B-1.)
 - (d) Establish pass/fail criteria (e.g., statistical model, test criteria, mathematical formulas, or methods, lesson plans, as applicable).
- (4) Test Control. Identify exercise control measures.
 - (a) Establish the PT control chain of command.
 - (b) Describe controller responsibilities specific to the PT/exercise/scenario.
 - (c) Explain use of trusted agent(s).
 - (d) Describe non-participant (observer) controls.
 - (e) Describe PT and emergency communications systems.
 - (f) Describe accountability and control of ESS and live-fire firearms and ammunition.
 - (g) Describe the controls for the Shadow Force, if applicable.
- (5) Resource Requirements. Identify resources necessary to control and conduct the exercise.
 - (a) Participants.
 - 1 Shadow Force.
 - 2 Opposing Force (OPFOR).
 - 3 Fixed PF posts.
 - 4 SRT.
 - 5 Mobile PF units.
 - 6 Airborne PF units.
 - 7 Waterborne PF units.

- 8 Canine units.
 - 9 Local Law Enforcement Agency(ies) (LLEA) units.
 - (b) Logistics.
 - 1 Equipment.
 - a Firearms.
 - b Vehicles.
 - c Communications.
 - 2 Supplies.
 - 3 Safety/health.
- (6) Training Requirements.
 - (a) Describe prerequisite training for PF, OPFOR, and role players (e.g. SPO-I, -II, or -III qualified, or scenario-specific training).
 - (b) Describe prerequisite training required for controllers.
- (7) Exercise Coordination Requirement. Describe all organization coordination requirements.
 - (a) Continuation of Operations.
 - 1 Shadow Force.
 - 2 Operations area(s).
 - 3 Building/area occupancy.
 - (b) Safety and Health Oversight and Support.
 - 1 Emergency medical.
 - 2 Fire department.
 - 3 Radiation protection.
 - 4 Appropriate population notification.
 - (c) Essential LLEAs.
 - (d) Opposition Force Coordination.
 - 1 Arrange OPFOR team lodging, vehicle support, and other logistical requirements.

- 2 Develop mission order for use in tactical planning.
 - 3 Develop scenario-based training schedule.
 - 4 Negotiate weapons effects for vehicles and/or structures that cannot be MILES-harnessed.
 - 5 Coordinate OPFOR controller assignments.
 - (8) Compensatory Measures. Describe any compensatory measures required during the PT.
 - (9) Safe Exercise Halt Procedures.
 - (a) Actual alarm response.
 - (b) Response into exercise area (treatment, handling, and evacuation of injured during actual emergencies and accidents).
 - 1 Operational anomalies.
 - 2 Administrative Hold.
 - 3 Exercise Freeze.
 - 4 Weather.
- (10) End of Exercise Accountability.
 - (a) Personnel.
 - (b) Firearms.
 - (c) Equipment.
- (11) Radiation Monitoring.
- (12) Shadow Force.
 - (a) Release and control.
 - (b) Accountability prior to restart/resumption of exercise activity.
- (13) Coordination and Approval. Review and/or sign off (concurrence), as applicable.
 - (a) PF management.
 - (b) Facility Security Officer.
 - (c) Environment, Safety and Health (e.g., Facility Representative).

- (d) PF Range Master.
 - (e) PF Training Manager.
 - (f) DOE cognizant security authority.
 - (14) References. Identify any applicable site specific procedures.
 - d. The PT report must address the following:
 - (1) detailed results of the exercise, including a pass/fail determination;
 - (2) lessons learned; and
 - (3) required corrective actions and/or mitigation factors to address identified vulnerabilities.
3. SAFETY. PTs must be conducted with the highest regard for the safety and health of personnel, protection of the environment, and protection of Government property. Specific safety considerations and requirements for conducting PTs are found in Section B, Chapter III. Site-specific procedures addressing the conduct of PTs, the use of ESS, and safety considerations must be prepared by PF management, submitted to the DOE cognizant security authority for review and approval, and incorporated into the site performance assurance program (see DOE M 470.4-1).
4. COMMAND AND CONTROL.
- a. Command and Control System. A system of command and control must ensure that ESS safety and other requirements of this Manual are met and maintain an environment free of the recognized risks associated with conducting certain PTs and training activities. The command and control system must ensure that Rules of Engagement (ROE) are followed, specific hazards and safety concerns, as identified in a risk assessment, are appropriately addressed, and exercise continuity is maintained. The command and control system is dependent on a contingent of personnel selected and specifically trained to control ESS PTs.
 - b. Command and Control Responsibilities. The controller staff must be organized in a manner that facilitates the control of all affected locations and the control and coordination of all events to be initiated during the exercise. Individual controllers may have several duties assigned depending on where they are and what activities are occurring in their areas of responsibility. Their first and foremost responsibility is ensuring safety during exercise activities. This includes ensuring all participants adhere to the safety procedures and ROE. Event controllers at a particular exercise location are responsible for ensuring that prompt action is taken in accordance with established safety procedures to prevent accidents or unsafe conditions. Controllers are responsible for enforcing or implementing the following requirements during exercises.

- (1) Conducting safety checks and inspections of all personnel under their control for live rounds or other prohibited ammunition in DMC/Paint Ball (DMC/PB) or MILES PTs/exercises. No DMC/PB rounds allowed in MILES exercises unless using approved hybrid ESS weapons. Safety checks and inspections should also be conducted for other prohibited articles and for general safety. The results of these checks and inspections must be reported to the Senior Controller prior to the initiation of the PT.
 - (2) Ensuring no live firearms or ammunition of any type is allowed within the ESS PT area, except those under the direct supervision of the Shadow Force Controller.
 - (3) Ensuring PT participants and observers wear and use appropriate safety equipment.
 - (4) Ensuring that personnel under their control comply with the PT plan to include the ROE and the safety regulations.
 - (5) Ensuring that ESS firearms handling and manipulation procedures comply, or are compatible, with procedures for live-fire training/operations.
 - (6) Terminating a specific activity or the entire PT if unsafe conditions or acts are observed.
 - (7) Ensuring the accountability of personnel and equipment at the termination of the PT and reporting the results to the Senior Controller and Shadow Force Controller.
- c. Command and Control Positions. Every FoF PT and related activity must be regulated by controllers under the supervision of an Exercise Director, who is responsible for overall control of the PT. The Exercise Director must be supported by a Senior Controller, a Safety Controller, an ESS Controller, a Shadow Force Controller, and specific Event Controllers. These individuals must be trained to fulfill their responsibilities to ensure activities are accomplished safely.
- (1) Exercise Director. The Exercise Director is a senior Federal or contractor official charged with overall responsibility for the exercise, to include pre-planning activities, assuring command and control during the exercise, and follow-up for any lessons learned. The Exercise Director:
 - (a) is responsible for assuring that all appropriate safety and S&S measures are in place prior to the start of, and during, the exercise;

- (b) is responsible for signaling the beginning and end of exercises, and for guiding and supervising the other controllers;
 - (c) has final authority for exercise halts due to potential safety or S&S concerns; and
 - (d) should have a counterpart management official when operational facilities are the site of the exercise.
- (2) Senior Controller. The Senior Controller reports directly to the Exercise Director and is responsible for coordinating, establishing, and supervising the exercise controller staff; identifying the number of personnel required to control the exercise; ensuring that appropriate controller training is conducted; and developing and implementing the concept of operation for the Exercise Director. The Senior Controller ensures:
- (a) all controllers have attended on-site pre-exercise controller training and scenario orientation;
 - (b) a sufficient number of technically qualified controllers are available to support each exercise event;
 - (c) all participant groups, as determined by the Exercise Director, are thoroughly briefed on their respective exercise scenarios, ROE, safety concerns, emergency procedures, medical response, munitions and firearms safety, and vehicle and personnel safety (see Appendix B-1 for an example of a Pre-Exercise Briefing format); and
 - (d) exercise debriefings are conducted and documented:
 - 1 controllers understand their responsibilities in support of exercise documentation; and
 - 2 controller debriefings are coordinated and documented.
 - (e) OPFOR personnel from other sites, locations or agencies:
 - 1 receive training on site-specific procedures for ESS exercises, and safety and health protection; and
 - 2 participate in safety walk downs of the exercise area as permissible and required.
- (3) Safety Controller. The Safety Controller is responsible for assessing the PT plan and ensuring that walk downs of the exercise area and safety briefings are conducted. The Safety Controller also ensures that safety briefings specify the ROE, medical response, munitions and firearms

safety, and vehicle and personnel safety. The Safety Controller provides support to the Senior Controller and must remain in contact with the Senior Controller at all times during the exercise. In addition, the Safety Controller:

- (a) assists the Senior Controller in the development and conduct of pre-PT controller training;
 - (b) ensures that adequate safety walk downs are conducted to determine site suitability prior to the PT;
 - (c) ensures that identified controllers are required to go on each safety walk down;
 - (d) verifies that all required personnel are present for each safety walk down;
 - (e) conducts a safety walk down of the PT area with the Exercise Director, Senior Controller, Event Controllers, Shadow Force Controller, and other selected controllers (as appropriate) prior to the exercise; and
 - (f) coordinates with emergency management personnel to ensure emergency medical and fire protection services will be present or on call for the duration of the PT.
- (4) ESS Controller. In PTs involving the use of ESS equipment, the ESS Controller is responsible for:
- (a) issuing and accounting for all ESS firearms, weapons, and support equipment;
 - (b) inspecting all ESS ammunition to be utilized prior to issue;
 - (c) testing the ESS equipment for operability in conjunction with the firearm prior to PT commencement; and
 - (d) collecting all ESS firearms and ammunition, and pyrotechnics at the conclusion of the PT.
- (5) Shadow Force Controller. A Shadow Force Controller with the experience necessary to ensure that the Shadow Force responds as required to a real security incident that may occur during a PT, is a critical participant. The Shadow Force Controller is responsible for ensuring:
- (a) voice communications are established and maintained with the Senior Controller throughout the course of the PT;

- (b) all live firearms are maintained under his/her supervision and Shadow Force personnel do not come in contact with PT participants with ESS equipment; and
 - (c) that the Shadow Force knows the PT area and emergency response procedures. The Shadow Force must remain under direct supervision and control during the PT, and after coordination with the Senior Controller, will be released in the event of an actual alarm or other security incident, in accordance with the approved PT plan.
- (6) Opposition Force (OPFOR) Controller. The OPFOR Controller must possess sufficient tactical expertise, knowledge, and physical ability to ensure that his/her presence does not interfere with, or hamper the actions of, the OPFOR in completing planned scenario actions. The OPFOR Controller is responsible for ensuring:
- (a) voice communications are established and maintained with the Senior Controller throughout the course of the PT; and
 - (b) the OPFOR adheres to the ROE and planned scenario(s) actions.
- (7) Event Controllers. Event Controllers report to the Senior Controller and are responsible for executing control over specific categories of PT activity, including one or more events. Event Controllers are responsible to ensure nonparticipating facility personnel in the PT area are aware that an exercise is to be conducted and that they are not to interfere with the flow of the exercise. Event Controllers must ensure that all PT participants under their control:
- (a) are aware of procedures for halting a PT for safety reasons or for an actual emergency;
 - (b) are not in possession of any live firearms or ammunition;
 - (c) as applicable, have been provided with instruction on the hazards of Light Anti-Tank Weapon (LAW) simulators and any personnel using a LAW simulator have received comprehensive instruction on its usage prior to PT initiation;
 - (d) have operable communications equipment;
 - (e) are fully trained and qualified if assigned responsibilities to deploy hand-thrown pyrotechnics, flash-sound diversionary devices, and/or chemical agents; and
 - (f) are instructed that full-charge flash-sound diversionary devices must not be deployed into occupied areas or rooms and that the

minimum distance they may be deployed near personnel in open areas must be consistent with the specific pyrotechnic technical data sheet or Material Safety Data Sheet (MSDS), in no case less than 50 feet. Sub-charge flash-sound diversionary devices may be deployed into occupied areas or rooms with the approval of the appropriate safety organization.

- (8) Evaluators. Evaluators are PT observers with responsibility to record the PT progress, the actions of participants, and the results of actions. Evaluator observations are used to determine exercise results. Controllers may also be tasked to conduct evaluation duties. Evaluators are responsible to stop PT activities for safety reasons.
- (9) TAs. In preparing for and conducting a PT, it may be necessary to provide sensitive information to selected non-participants and participants regarding the occurrence and/or timing of events to accomplish necessary coordination for realistic testing. Such individuals may be designated as a TA. The term is not normally applied to controllers, who may also possess the sensitive information (e.g., PT timing, planned events).
 - (a) Role. The TA serves as a liaison between a simulated OPFOR and the PF being evaluated. PT planners must determine the number of Trusted Agents necessary.
 - (b) Responsibilities. The TA works with the OPFOR commander to develop the PT scenario(s). The Trusted Agent identifies potential hazards in the PT area and works with the Exercise Director to establish recommended controls that minimize the likelihood of injuries/illnesses among PT participants. To successfully fulfill the role of TA, the individual must divulge as little information about the PT scenario as possible while ensuring that appropriate measures are taken to ensure the PT is conducted safely.
 - (c) Selection Criteria. Individuals selected to serve as TAs must:
 - 1 have sufficient understanding of the PF's security posture, response plans, and capabilities to predict how the PF is likely to respond;
 - 2 be familiar with the DBT used in VAs and the SSP/SSSP to assist the OPFOR in developing realistic scenarios;
 - 3 be familiar with the targeted facility to understand the safety implications of OPFOR activities;

- (e) transportation arrangements for controllers, exercise participants, data collectors, and observers to the PT location and during PT activities;
 - (f) purpose of the after action meeting, the information that should be brought to the meeting, and the location for the meeting;
 - (g) location for the issue and turn in of equipment, accountability measures, and detailed instructions on the equipment required for each controller during the PT;
 - (h) detailed description and demonstration of the radios the controllers operate during the PT. Explain the importance of operating only on the channel and frequency specified in the communications plan;
 - (i) detailed briefings and demonstrations, as appropriate, on each piece of ESS equipment to be used in the PT and how and where it will be utilized;
 - (j) map(s) depicting the route to the PT area and conduct a walk-down with all controllers/evaluators, as necessary;
 - (k) PT emergency procedures;
 - (l) guidelines for information control and established policies and procedures for the protection of PT related classified information, and unclassified controlled information;
 - (m) methodology for identifying controllers/evaluators and donning and wearing of any apparel to be used for identification purposes, as applicable; and
 - (n) directions to, and scheduled time(s) for, controller/evaluator meetings.
5. COORDINATION. When a CPX or CFX involves a demonstration of site-level emergency response capabilities, the development and conduct of the exercise must be coordinated with the appropriate site-level emergency management organizations.
6. TESTING FREQUENCY. Performance testing must be conducted as stated in Table VII-1, *Testing Frequency*.

NOTE: Annual requirements for FoF, CPX, CFX, and JTX exercises may be combined when determined appropriate in SSSPs. Requirements for ARAPTs may be satisfied through combined testing of multiple alarms in the same or proximate location(s) and required monthly PF shift and SPO-III shift training exercises.

TABLE VII-1. Testing Frequency.

Type of Performance Test	Minimum Performance Test Frequency
LSPT	As required
ARAPT	One performance test per quarter for each alarmed location.
FoF	One performance test per year for each facility for all sites (additional requirements for Category I facilities are contained in DOE M 470.4-1, Part 1, Section F, 2.d.).
CPX	One performance test per year for each site.
CFX	One performance test per year for each site.
JTX	As required per SSSP, one performance test per year for each site, as applicable (see Chapter IV, paragraph 13 and 1.f., of this Chapter).

CHAPTER VIII - EXECUTIVE PROTECTION PROGRAM

1. PURPOSE. The Department of Energy (DOE) Executive Protection Program (EPP) is designed to prevent the kidnapping, intentional or unintentional harm/injury to, or harassment of the Secretary of Energy and, when designated by the Secretary, the Deputy Secretary of Energy.
2. SCOPE. Measures, including the use of armed protective force (PF) personnel, may be provided for the protection of the Secretary and/or Deputy Secretary within or outside the United States. The Secretary must determine the extent and nature of any protection measures to be performed. Executive protection operations and services will not be provided to the Secretary and/or Deputy Secretary without the knowledge and specific approval of the Secretary.
3. REQUIREMENTS.
 - a. The Office of Security will provide an orientation briefing to each newly appointed Secretary of Energy covering the essential elements of the Department's EPP.
 - b. The Director, Office of Special Operations (OSO), Office of Security, must forward recommendations for protection measures to the Secretary, or to the Secretary's designated representative, for approval.
 - c. Executive protection operations and services must be conducted by Special Agents or other commissioned law enforcement officers approved by the Director, OSO, and trained for this activity.
 - d. Only DOE personnel who have been deputized as U.S. Marshals by the U.S. Marshals Service are authorized to carry firearms in support of an executive protection operation within the United States and its possessions.
 - e. Approval for selected executive protection personnel to bear arms in a foreign country must be obtained from the foreign government by the Special Agent-in-Charge, EPP through the appropriate Department of State Regional Security Officer.

APPENDIX A-1 - GUIDELINES FOR FRESH PURSUIT

1. PURPOSE. The purpose of these guidelines, which have been approved by the U.S. Attorney General, is to set forth the procedures to be followed by Department of Energy (DOE) Federal and contractor protective force (PF) personnel, when pursuing suspected criminals across jurisdictional lines.
2. POLICY. It is DOE policy to prevent the escape and effect the arrest of fleeing suspected criminals in a safe and expeditious manner. The following procedures are intended to provide protective personnel with flexibility when in fresh pursuit of a fleeing suspected criminal. Each site must prepare site-specific guidelines that take into account the geography, equipment, and functions of the facility/site and that address the procedures that will be used to provide emergency notification to jurisdictions that may be entered in a fresh pursuit situation. The DOE cognizant security authority must submit the guidelines through the cognizant Departmental element to the Director, Office of Security, for approval.
3. DEFINITIONS. The following definitions apply to this Appendix.
 - a. Felony. Any offense enumerated in Title 10 Code of Federal Regulations (CFR), section 1047.4(a)(1)(i), as well as any offense constituting a felony under the laws of the jurisdiction in which the facility is located and with respect to which a PF would have arrest authority under 10 CFR 1047.4(d) and (e).
 - b. Fresh Pursuit. Pursuit (with or without a warrant) for the purpose of preventing the escape or effecting the arrest of any person who commits a misdemeanor or felony or is suspected of having committed a misdemeanor or felony. Fresh pursuit implies pursuit without unreasonable delay but need not be immediate pursuit. (Although fresh pursuit implies pursuit without unreasonable delay, for the purpose of preventing the escape or effecting the arrest of fleeing suspected criminals who are in unauthorized control or possession of nuclear weapons, weapons components, and/or special nuclear material [SNM], such pursuit must be effected immediately).
 - c. In the Presence. The criminal act must have taken place in the physical presence of (under the observation of) the PF officer. A PF officer is authorized to make an arrest for any misdemeanor listed in 10 CFR 1047.4(a)(1)(ii) if the offense is committed in the presence of the PF officer.
 - d. Jurisdictional Lines. For the purposes of these guidelines, these must include, but are not be limited to, the property lines of a DOE facility/site.
 - e. Misdemeanor. Any offense enumerated in 10 CFR 1047.4(a)(1)(ii), as well as any offense constituting a misdemeanor under the laws of the jurisdiction in which the facility is located and with respect to which a PF officer would have arrest authority under 10 CFR 1047.4(d) and (e).

- f. PF Officer. As defined in 10 CFR 1047.3(g), any person authorized by DOE authority to carry firearms under section 161.k. of the Atomic Energy Act.
- g. Reasonable Grounds to Believe. A PF officer is authorized to make an arrest for any felony listed in 10 CFR 1047.4(a)(1)(i) if the offense is committed in the presence of the PF officer or if the PF officer has reasonable grounds to believe (e.g., information from another PF or law enforcement officer, communications from a PF dispatcher or central alarm station operator) that a suspect had committed or was committing a felony.

4. AUTHORIZED PURSUIT ACROSS JURISDICTIONAL LINES.

- a. Misdemeanors. A PF officer may engage in the fresh pursuit of a suspected misdemeanor across jurisdictional lines only if the alleged misdemeanor was committed, or is being committed, in his or her presence. If the alleged misdemeanor was not committed in the presence of a PF officer, PF officers must not pursue the suspected misdemeanor across jurisdictional lines. Instead, the PF officers must attempt to obtain a description of the suspected misdemeanor, as well as a description and license tag number of any vehicle being used by the suspected misdemeanor, and must convey this information (in accordance with the specific notification procedures issued by DOE line management) to the State and other local law enforcement authorities for the jurisdiction into which the suspected misdemeanor has fled.
- b. Felonies. PF officers may engage in the fresh pursuit of a suspected felon across jurisdictional lines if:
 - (1) the alleged felony is being committed, or was committed, in the presence of a PF officer; and
 - (2) any PF officer has reasonable grounds to believe that the person pursued is committing, or has committed, the alleged felony.

5. FRESH PURSUIT PROCEDURES.

- a. Responsibility. Responsibility for decisions respecting fresh pursuit must follow the PF command structure. In making fresh pursuit decisions, PF officers must consider applicable Federal and State laws; Departmental directives, guidelines, and regulations; and PF plans, Post Orders, General Orders, guidelines, and training.
- b. Safety Considerations.
 - (1) Safety is a primary consideration when engaged in fresh pursuit of a suspected criminal. In determining whether to pursue, as well as the method and means of pursuit, a PF officer will weigh the seriousness of the alleged offense and the necessity for immediate apprehension against

the risk of injury to himself/herself, other PF officers, and the public. If at any time during the pursuit the risk of injury to pursuing PF officers or the public surpasses the necessity for immediate apprehension, the pursuit must be terminated.

- (2) PF officers will use the minimum force necessary under the circumstances to apprehend a suspected criminal.
- (3) Regulations at 10 CFR 1047.6, 1047.7, 1049.6, and 1049.7 address the applicability of physical and/or deadly force in a fresh pursuit situation, regardless of whether jurisdictional lines have been crossed. Such use may include, as appropriate, firing at or from a moving vehicle, aircraft, or water craft; the ramming and disabling of pursued vehicles by precision immobilization techniques (PIT); and the use of tire deflating devices.
- (4) If hostages are present in a pursuit situation in which recovery of SNM is involved, the safety and welfare of hostages must be considered; however, due to the ramifications of unauthorized use of SNM to the national security, the public, and the environment, the hostages' presence must not deter or impact immediate pursuit and recovery of the SNM.

c. Vehicular Pursuit.

- (1) Vehicles used in fresh pursuit must be operated in as safe a manner as is practicable.
- (2) To the extent practicable, vehicles used must be "marked" and equipped with visual and audible emergency equipment.
- (3) Vehicles occupied by non-PF personnel must not be used in fresh pursuit situations unless the situation mandates an immediate pursuit and the extreme circumstances prohibit the occupant's disembarkation.
- (4) The number of pursuing vehicles that cross a jurisdictional line must be limited to that necessary to provide sufficient personnel to deal with the situation. Under no circumstance will the number of pursuing PF officers be such that the facility is left without sufficient security protection.
- (5) There are inherent dangers associated with the use of roadblocks; thus, unless exigent circumstances mandate immediate apprehension of the suspected criminal, PF officers generally must not attempt roadblocks without the authorization of the appropriate law enforcement officials of the jurisdiction entered and must not use roadblocks to apprehend suspected misdemeanants. Under no circumstances will a roadblock be used without the concurrence of the supervisor of the pursuing PF officers.

- (6) There are inherent dangers associated with the use of ramming/PIT and tire deflating devices; thus, unless exigent circumstances mandate immediate disabling of the suspect vehicle (i.e., unauthorized control of SNM, possession of explosives), PF officers generally must not attempt ramming/PIT or use tire deflation devices without the authorization of a PF supervisor. However, such authorization is not required when requesting such authorization may affect the timely termination of the pursuit. Ramming/PIT and tire deflation devices must not be used to apprehend suspected misdemeanants. Specific guidelines regarding the use of ramming/PIT and tire deflation devices in fresh pursuit situations must be included in the site-specific guidelines submitted to the Director, Office of Security, for approval.
- d. Aerial Assistance. Where DOE has aerial capability (e.g., helicopters, fixed-wing aircraft), specific guidelines regarding the use of aircraft in fresh pursuit situations, including pursuit, observation, reporting, and deployment of response forces, must be coordinated with appropriate State and other local officials. This information must be included in the site-specific guidelines submitted to the Director, Office of Security, for approval.
- e. Water Craft Assistance. Where DOE has waterborne capability, specific guidelines regarding the use of water craft in fresh pursuit situations, including pursuit, observation, reporting, and deployment of response forces, must be coordinated with appropriate State and other local officials. This information must be included in the site-specific guidelines submitted to the Director, Office of Security, for approval.
- f. Communications.
 - (1) At all times during a fresh pursuit situation, the PF officers involved must make every attempt practicable to maintain open communications and to relay as much factual information as possible to the PF dispatcher.
 - (2) Upon the engagement of a fresh pursuit situation, the PF dispatcher must immediately notify supervisors in the PF command structure and the officer in charge of on-site PF operations.
 - (3) When it becomes apparent to the pursuing PF officers that jurisdictional line(s) might be crossed, this information must be transmitted immediately to the law enforcement authorities of the jurisdiction to be entered in accordance with the site-specific emergency notification procedures. To the extent possible, such notification must include a description of the fleeing suspect and/or vehicle, the alleged criminal violation for which the suspect is being pursued, and the location and direction of travel of the suspect.

- g. Coordination with Other Law Enforcement Authorities. When other Federal, State or local law enforcement authorities with jurisdiction in the area into which the suspected criminal has fled join the pursuit, they must be primarily responsible for the continued pursuit.
- (1) The PF dispatcher, supervisors in the PF command structure, and the officer in charge of on-site PF operations must coordinate the pursuit efforts of PF officers with other Federal, State, and/or other local law enforcement authorities who assume primary responsibility.
 - (2) PF officers participating in the pursuit must continue to participate in pursuit operations until otherwise instructed by the PF dispatcher, respective supervisors in the PF command structure, or the officer in charge of on-site PF operations.
 - (3) At least one PF officer unit will remain available to assist the other pursuing Federal or State and other local law enforcement authorities until the pursuit is concluded or otherwise terminated. That PF officer will thereafter provide such law enforcement authorities with all relevant information regarding the circumstances surrounding the incident.
- h. Arrests.
- (1) When other Federal law enforcement authorities (e.g., Federal Bureau of Investigation (FBI) or U.S. Marshal) are involved with PF officers in the apprehension of a suspected criminal (regardless of whether on or off DOE property), PF officers must relinquish arresting authority to the other Federal law enforcement authorities.
 - (2) When State or other local law enforcement authorities are involved with PF officers in the off-site apprehension of a suspected criminal, the issue of which law enforcement official is in charge in order to effect an arrest is generally not a matter of policy but one of common sense dictated by the circumstances. Such an assessment includes an evaluation of the expertise of those present, which agency has first established control, and the disruptive effect, if any, of transfer of control. The determination of which jurisdiction should make the arrest is, therefore, left to the discretion of the officers involved. To the extent practicable, guidelines addressing this issue should be prepared on a site-by-site basis in coordination with State and other local law enforcement authorities. Such guidelines must be included in the site-specific guidelines submitted to the Director, Office of Security, for approval.
 - (3) When a suspected felon is apprehended (regardless of whether on or off DOE property), or when a suspected misdemeanor is apprehended on DOE property, the PF must immediately notify the appropriate U.S. Attorney's Office and escort the suspect to the nearest U.S. District Court

or U.S. Magistrate for arraignment (unless otherwise directed by local Federal law enforcement authorities, e.g., the FBI or a U.S. Marshal). Under no circumstances should a suspected felon be removed to another jurisdiction without first being processed through the Federal criminal justice system where the suspected felon was apprehended.

- (4) The pursuing PF officers must ensure that any Government property retrieved during pursuit or at the time of apprehension is properly secured and a chain of custody is established.

APPENDIX A-2 - DOE TARGET FOLDER FORMAT

VOLUME I

1. General Site Information.
 - a. Mission
 - b. Economic impact on area
 - c. Employment
 - d. Environment
2. Location.
 - a. Strip maps to the site from nearest airports, interstate highways, other principal routes
 - b. Surrounding area map (counties, cities, towns within 50-mile radius)
3. Site Boundaries.
4. Area (if applicable).
 - a. General data
 - b. Mission
5. Facility Description.
 - a. Photos
 - b. GPS coordinates
 - c. Map references
 - d. Azimuth and distances to predominant features
 - e. Grounds description
 - f. Helicopter landing zones w/approach obstacles (trees, light poles, fences, walls, vegetation)
 - g. Building construction
 - (1) Roof entrances and exists
 - (2) Roof type and strength (support helicopter landing?)
 - (3) Fire escapes and ladders
 - (4) Stairways
 - (5) Elevators

6. Security.
 - a. Security interests
 - (1) Special nuclear material storage or processing
 - (2) Other
 - b. Protection program description
 - (1) General defensive strategy
 - (2) Facility security force duties
 - (3) Response forces and missions (containment or denial)
 - (4) Security communications
 - (5) Weapons/ammunition/uniforms
 - (6) Radiation monitors
 - c. Limited Areas (LAs)
 - (1) Reason for LA
 - (2) Security measures
 - d. Protected Areas (PAs)
 - (1) Reason for PA
 - (2) Security measures
 - e. Process core (material in process and/or storage)
 - (1) Material access area
 - (2) Vaults
 - f. Memoranda of Understanding (MOUs) with Federal/State Local Law Enforcement Agencies
 - g. Security systems
 - (1) Intrusion detection - external
 - (2) Assessment - external
 - (3) Intrusion detection – internal
 - (4) Assessment - internal
 - h. Central alarm system (CAS) and secondary alarm system (SAS) locations

7. Electrical Power Sources.
 - a. Security system power supply
 - b. Operations power supply
 - c. Diagrams (panel locations)
 - d. Matrix
 - (1) Area/equipment affected
 - (2) Breaker
 - (3) Panel
 - (4) Panel location
 - e. Impact of no electrical power
8. Ventilation System.
 - a. Air conditioning
 - b. Size
 - c. Alarms
9. Telephone System.
 - a. Panel location
 - b. Phone numbers to outside lines
 - c. Servicing company
 - d. Cell phone availability
10. Medical Support.
 - a. Site
 - b. On-call/mutual aid
11. Fire Protection.
 - a. Firefighting equipment on site
 - b. Sprinkler system
 - c. Extinguisher locations
 - d. Air packs
 - e. Halon

- f. Hydrant locations
- g. Mutual aid
- 12. Toxic Hazards.
- 13. Water.
 - a. Potable water locations
 - b. Turn-off valves
 - c. Emergency storage
 - d. Maintenance company
- 14. Sewer.
 - a. Manhole covers
 - b. Routing and dimensions
- 15. Vehicles - type and number normally found.
- 16. Staffing.
 - a. Key personnel data
 - b. Badging information
 - c. Emergency Operations Center (EOC) information
 - d. Command post locations

VOLUME II

- 1. Building Layout - Floor Diagrams.
 - a. Doors
 - b. Interior windows
 - c. Rooms
 - d. Camera locations
 - e. Special Nuclear Material Storage or other Critical Targets
 - f. Fighting positions - fixed and movable
 - g. Other pertinent security information
- 2. Operational Considerations.
 - a. Fixed no-fire zones

- b. Recommended general tactical approaches
 - c. Likely hostage holding area(s)
 - d. Potential adversary vantage points
 - (1) Fields of fire
 - (2) Constraints on weapons
3. Exterior Breaching.
- a. List of access points with descriptions
 - b. Windows
 - (1) Size
 - (2) Type
 - (3) Thickness

VOLUME III

1. Critical Path(s).
- a. Critical path diagrams (with photos/video)
 - b. Critical path doors
 - (1) List of doors along path with descriptions
 - (2) Door information matrices
 - (a) Interior/exterior
 - (b) Glass size (wire)
 - (c) Width
 - (d) Height
 - (e) Thickness
 - (f) Lock type
 - (g) Door opening direction
 - (h) Material
 - (i) Keys and key control
 - (j) Breaching means and tools
 - c. Comments

- d. Update date
2. Locations of Friendly (DOE) Precision Rifleman/Special Weapon Positions.
 - a. Area
 - b. Building
 - c. Location (description)
 - d. Photos
 3. Critical Target Tactical Approach Aids.
 - a. Selective shutoff and/or bypassing security/radiological/fire alarms
 - (1) Sensor types and locations
 - (2) Light types and locations
 - (3) Activated barriers types and locations
 - (4) Methods of turnoff
 - (5) Personnel with access/control
 - (6) Methods of bypass
 - b. Ventilation shutoff/bypass
 - c. Special breaching assist information
 - d. Knowledgeable insiders

SECTION B – FIREARMS OPERATIONS

CHAPTER I - FIREARMS TRAINING

1. REQUIREMENTS.

- a. Firearms training programs must be based on criteria established by the Department of Energy (DOE) National Training Center (NTC). Such training programs must contain attachments on specific site-developed firing range and on-duty (off-duty when applicable) safety information and must incorporate sections of the manufacturer's operating manuals that are necessary to the safe operation, inspection, and maintenance of specific firearms.
- b. During firearms training, all personnel must have access to an instruction manual for each type of firearm with which they may be armed while on duty and must demonstrate both technical and practical knowledge of the contents of the manual governing the safe use of that firearm.
- c. Training records for personnel authorized to carry firearms must be available for review by appropriate safety and security personnel.
- d. All firearms training, qualification, practice and test firing activities must be conducted by personnel who are certified by the NTC in the principles of operation for the specific weapon system being trained. This certification is specific and personnel must not conduct activities for which they have not been certified.
- e. Lesson plans for all firearms training must be available for review by appropriate safety and security personnel. Such lesson plans must incorporate safety in addition to other training objectives and task performance standards. The NTC must provide training on how to develop the categorical information to be contained in typical lesson plans.
 - (1) Lesson plans must include a safety briefing for all participants and authorized observers. The briefing must be conducted by personnel experienced in performing exercises and knowledgeable about the firearms to be used.
 - (2) Lesson plans must be written and include safety requirements for any course of fire.
- f. Standard Operating Procedures (SOPs).
 - (1) All firearms training must be conducted in accordance with this Manual and local SOPs developed in response to specific site needs and tactics as designated by the DOE cognizant security authority. SOPs must include

detailed procedures emphasizing the safety of participants, observers, and bystanders and the use of Personal Protective Equipment (PPE).

- (2) All SOPs must be reviewed and approved by appropriate contractor safety and protective force (PF) personnel at least annually (every 12 months) or more frequently if significant revisions are made in the training program. DOE cognizant security authority and safety personnel review and approve SOPs initially and whenever significant changes are made.
- (3) The Four General Firearms Safety Rules.
 - (a) All firearms are always loaded.
 - (b) Never point a firearm at anything you are not willing to destroy.
 - (c) Keep your finger off the trigger until your sights are on the target.
 - (d) Be sure of your target.
- (4) Specific Range Safety Rules.
 - (a) It is mandatory to use approved eye and ear protection and other personal protective equipment as required by the range safety officer.
 - (b) Unsafe conditions must be reported immediately to an instructor.
 - (c) A firearm may only be exchanged with another shooter under the direct supervision of an instructor.
 - (d) Firearms must not be left unattended or unsecured.
 - (e) Firearm loading and firing may commence only on command.
 - (f) Shooters are not permitted to talk during a firing activity except in reply to an instructor as a part of the activity or to shout "cease fire" in an unsafe situation.
 - (g) Until the firing line has been declared safe by the firearms instructor, shooters must not move past or bend over the line.
 - (h) All shooters must be trained on what constitutes an unsafe condition and to shout "cease fire" when such a condition is observed.
 - (i) Smoking, eating, or drinking must be prohibited while shooting.

- (j) Alcoholic beverages and drugs are prohibited on firing ranges. Shooters taking medication must report this fact to the firearms instructor before reporting to the firing line. The firearms instructor is responsible for determining whether a shooter is fit based on the medication taken and whether it is safe for the shooter to use the range. A physician may be consulted if necessary.
 - (k) Shooters must take precautions to prevent hot spent cartridge and gunshot residues from getting inside their clothing.
 - (l) When a training session is completed, each firearm must be physically examined by the shooter and by a designated range safety officer or qualified firearms instructor to ensure that it is unloaded and in safe condition before leaving the range. If the shooter is using a duty firearm on the range, he or she may reload that weapon at the range if returning directly to duty.
 - (m) Shooters must collect unexpended ammunition and return it to a firearms instructor.
 - (n) While a firearm is being cleaned, live ammunition must not be allowed in the cleaning area.
- (5) All firearms training and qualification requires instructor-to-shooter ratios with no more shooters than:
- (a) One instructor-to-one shooter.
 - 1 Any initial automatic firing (e.g., submachine gun or rifle).
 - 2 Any initial live-fire training of the machine gun (e.g., M60, M249, M240).
 - 3 Any explosive projectile (e.g., M79, M203, M72).
 - 4 Any advanced course of fire with any firearm involving movement of the shooter other than straight down range or with a fan of fire greater than 10°.
 - 5 Any automatic fire training (e.g., submachine gun, rifle, or machine gun).
 - (b) One instructor-to-no more than four shooters for Special Response Team (SRT) courses developed by the NTC and approved by the Office of Security and conducted by the NTC or by sites certified to conduct NTC SRT courses.

- (c) One instructor-to-four shooters for re-qualification with a submachine gun, rifle, or machine gun in automatic mode using controlled bursts of fire and for practice or training for personnel who have qualified on at least one automatic course of fire in Section C.
- (d) One instructor-to-eight shooters when firing in the semiautomatic mode (e.g., automatic rifle in semiautomatic mode, shotgun, semiautomatic rifle, and pistols), except during night firing and initial training where the instructor-to-shooter ratio must not be more than one instructor-to-four shooters. When using an indoor range, whether daylight or simulated night fire, the instructor-to-shooter ratio may increase to one instructor-to-five shooters.
- (6) A range safety officer or an instructor with specific delineated responsibilities for range safety (e.g., monitor the safety performance of the shooters as well as overall safety of the firing range) must be present during all firearms training and qualification activities.
 - (a) When the instructor-to-shooter ratio requires only one instructor on the firing line, he or she must be the lead instructor and may be assigned range safety responsibilities if approved by the range master.
 - (b) When the instructor-to-shooter ratio requires two or more instructors on the firing line, there must be a lead instructor presiding over the firing activities (i.e., “calling the line”) who will not be assigned additional instructional duties or be included in the instructor-to-shooter ratio, but may be assigned range safety responsibilities. To accomplish these activities, the lead instructor may be positioned either behind the firing line, in a booth, or in a tower, whichever location provides the greatest safety and control.
- g. Non-Security Use of Firearms. All Federal and contractor organizations with employees using firearms in non-security related activities must develop a program of firearms safety specific to those activities. The program must be approved by the DOE cognizant security authority. Specific written procedures must be developed and approved for any activity not addressed elsewhere in this Manual that involves the planned discharge of firearms, e.g., competitive shooting matches, public hunting, or pest control.

2. BASIC TRAINING.

- a. Basic firearms safety training and demonstrated technical knowledge and practical proficiency is required before firearms are permitted to be carried on duty. Safety training must be conducted semiannually (at least every 6 months) at

which time safety proficiency must be demonstrated in order to retain weapon-carrying status.

- b. Basic firearms training must be conducted at a site approved by the DOE cognizant security authority.
 - c. Basic firearms safety training must include the following:
 - (1) general firearms safety orientation;
 - (2) instructions on the capabilities of firearms and ammunition and their implications; and, where applicable, instructions on the hazards associated with the impact of bullets and other projectiles on nuclear explosives, nuclear weapons, explosives, and other possible items that could result in a significant release of energy or toxic substances;
 - (3) firearms safety information for each type of firearm required by duty assignment;
 - (4) practice with the unloaded firearm in the teaching environment;
 - (5) range safety procedures and demonstration of safe firing techniques on the range;
 - (6) dry-firing techniques and hazards associated with dry firing;
 - (7) handling of misfires;
 - (8) detailed procedures on clearing, handling of malfunctions, inspecting, cleaning, loading, unloading, and other specific tasks related to each firearm for which the student receives training. This may include instruction and practice in assembly/disassembly but must not include repair, modification, or replacement of parts;
 - (9) details of firearms accidents and how they could have been prevented; and
 - (10) the Four General Firearms Safety Rules.
3. ADVANCED TRAINING. The firearms safety portions of advanced firearms and of Security Police Officer (SPO)-III firearms training must follow the same rules as 2.c., above.
4. RANGE OPERATIONS AND PROCEDURES.
- a. Specific site range safety rules and regulations must be developed and implemented by the organization designated to be responsible for operating a live-fire range. Such rules and regulations must be formal, provide a disciplined

- approach to range operations, and include rules and regulations on pre- and post-firing range activities.
- b. A risk analysis or a Safety Analysis Report must be prepared on the facilities and the operations of each live-fire range. The report must be reviewed and approved by contractor safety personnel and the DOE cognizant security authority.
 - c. Range safety rules must be conspicuously posted at the entrance to each DOE-controlled live-fire range or range complex.
 - d. Before firing commences, a safety briefing for all participants must be conducted that will include the basic range safety rules, the capabilities of the firearms to be used, and the safe operating procedures for the course of fire to be undertaken.
 - e. Dry-fire practice must be conducted only in an approved area under the direct supervision of a firearms instructor.
 - f. A scarlet streamer must be prominently displayed at live-fire ranges at all times during daylight firing. The streamer must be replaced with a blinking or pulsating red light for night firing. These day and night range warning indicators must be visible to aircraft. Where live-fire operations may affect routine aircraft operations directly, the appropriate aviation control center must be notified.
 - g. If professional medical personnel are not readily available, firearms instructors must be trained and currently qualified in cardiopulmonary resuscitation (CPR)/first aid. CPR/first aid training must be conducted by instructors certified by the American Red Cross or the American Heart Association. Specific training on the handling of gunshot wounds must be provided.
 - h. Medical equipment must be available at a live-fire range as determined by the cognizant site physician or other authorized personnel.
 - i. An approved plan must be in place for handling, treating, and evacuating injured personnel through the use of an air ambulance or on-scene wheeled ambulance. Emergency response drills must be carried out annually (at least every 12 months) to test personnel preparedness in implementing the plan.
 - j. Airborne lead monitoring must be conducted at all firing ranges in compliance with Occupational Safety and Health Administration (OSHA) lead standard, 29 Code of Federal Regulations (CFR) 1910.1025. The medical surveillance provisions of the lead standard must be established and implemented when measurements indicate that employees are, or may be exposed to, airborne lead concentrations that exceed the action level.

- k. Any employee involved in regular firearms training (e.g., instructors or Security Police Officers) must be entered into a hearing conservation program. [See 29 CFR 1910.95].
- l. A communications system with backup (i.e., telephone and/or two-way radio) must be available at each live-fire range.
- m. Live-fire ranges must be equipped with sufficient lighting to assure safe nighttime firing exercises.
- n. Written and approved procedures for handling duds and misfires must be provided at all live-fire ranges.

5. LIVE-FIRE SHOOT HOUSE (LFSH) OPERATIONS.

a. Responsibilities.

- (1) Range Master. The range master is responsible for the safe operation and coordination of maintenance for the LFSH and all activities at the live-fire range.
- (2) Safety Officer. The safety officer is specifically responsible for safety during LFSH operations.
- (3) Lead Instructor. The lead instructor is responsible for the overall conduct of a specific course and must:
 - (a) meet the requirements to support training, to include targets, ammunition, medical support, support equipment, classrooms, and training aids;
 - (b) ensure all participants are qualified to engage in LFSH activities;
 - (c) ensure the required instructor-to-shooter ratio is met;
 - (d) ensure everyone in the LFSH and on the elevated observation control platform (EOCP) during a live-fire exercise is wearing appropriate PPE;
 - (e) ensure all participants have received a safety briefing; and
 - (f) delegate and assign responsibilities to other instructors.
- (4) Instructor. All activities conducted within the LFSH, whether live- or dry-fire, will be under the direct supervision of a qualified instructor who will:

- (a) position targets and bullet traps to prevent an errant round from crossing the path of another shooter's movement within the target room;
- (b) blow the "stop" whistle and/or announce "CEASE FIRE" in the event of any observed safety violation;
- (c) observe the loading and unloading of weapons;
- (d) clear the LFSH of personnel before the exercise begins;
- (e) conduct demonstrations for students as appropriate;
- (f) ensure there is no debris, pooled water, or ice on the floor; and
- (g) supervise and control the issue, deployment, and disposal of all ammunition and diversionary devices used during training exercises.

(5) Shooters. A shooter is any training participant that enters the LFSH as a member of the entry team, regardless of whether the individual's weapon is loaded or unloaded. They must follow the directions of the instructors at all times.

(6) Observers. Observers must follow the established safety rules.

b. Operations.

- (1) LFSH Safety Briefing. Shooters must receive a safety briefing before participating in training. The briefing must include:
- (a) the Four General Safety Rules;
 - (b) specific range safety rules;
 - (c) instructions to keep the weapon at the low ready unless engaging a target;
 - (d) instructions to de-cock or safe the firearm as soon as offensive actions have stopped, or anytime the shooter plans to move a significant distance;
 - (e) instructions to await further commands from the instructor when an operation has ended;
 - (f) the fact that every participant is a safety officer;

- (g) instruction that when a whistle blast is heard and/or a verbal command of “CEASE FIRE” is given, the shooter is to freeze and keep the trigger finger straight along the frame of the weapon;
- (h) direction that weapons handling and muzzle discipline must be enforced;
- (i) information that a round that does not impact a bullet trap is a safety violation;
- (j) direction that the one-meter rule must be enforced;
- (k) instruction not to shoot unless the shooter is certain that a shot is safe;
- (l) instruction that a shooter not turn back after turning in the wrong direction (i.e., the shooter is committed to the new area of responsibility);
- (m) direction that the shooter should not exceed the area of responsibility;
- (n) instructions to exercise fire discipline using the fewest number of rounds to solve the problem; and
- (o) instructions to take appropriate action in the event of a malfunction.

(2) Safety Violations.

- (a) Shooters must adhere to established safety policies and procedures at all times.
- (b) Shooters will be evaluated to determine causal factors for all safety violations.
- (c) Shooters must be removed from training activities if safety policies or procedures are disregarded.
- (d) Shooters must be removed from training and placed in remedial training if identified as repeat violators of safety policies.

(3) Qualification Requirements.

- (a) Prior to conducting training within the LFSH, instructors must have successfully completed SPO-III training, SPO-III Instructor

Certification (IC) training, an LFSH written examination and LSPT, and completed 40 hours of assistant instructor duties within an LFSH. Additional requirements include annual (within a 12-month period) completion of 20 hours of live-fire operations within the LFSH and semiannual completion (at least once every 6 months) of both the LFSH Qualification Test (SPO-III Course) and the DOE Shooting-on-the-Move Qualification Course for pistol and submachine gun/rifle, with a minimum score of 90 percent on each.

- (b) For non-DOE users, a lead instructor from the user agency must be designated prior to that agency's use of a DOE LFSH. All instructor qualifications must be reviewed and approved by the cognizant security authority, Federal or contractor, with oversight of LFSH operations.
 - (c) Prospective shooters in LFSH exercises must demonstrate proficient marksmanship skills of at least 90 percent accuracy on the respective DOE SPO-III Shooting-on-the-Move qualification course of fire.
- (4) Instructor-to-Shooter Ratio. The instructor-to-shooter ratio is one instructor to four shooters plus a lead instructor/safety officer.
 - (5) Instructor Locations. At least one instructor must be positioned on the EOCP and one instructor on the floor during the conduct of live-fire operations. Instructors must be positioned to observe shooters actions at all times.
 - (6) Weapons Allowed. Only weapons for which an LFSH has been certified may be used.
 - (7) Ammunition Allowed. Only ammunition approved for use by DOE and the range master may be used within the LFSH.
- c. Targets and Bullet Traps. Various types of targets may be used within the LFSH. Target placement must meet the requirements of this Section. If a target or target system fails these requirements, that particular target may not be used within the LFSH. Targets will be placed on bullet traps so the maximum effective area of the trap will be utilized to contain rounds; thus, no rounds will penetrate the construction joints on that trap.
- (1) Three-Dimensional (3-D) Targets. 3-D targets may be used with the approval of the range master. Firing angles must be verified by the lead instructor to ensure containment of rounds within approved bullet traps or backstops.

- (2) Bullet Traps. Bullet traps must be approved by the range master prior to use within the LFSH. Any bullet trap that appears to be in need of repair will not be used during live-fire training. Bullet traps must be angled at least 7° to the potential shooting position and positioned so that a shooter cannot engage a target at less than a 60° angle. Blinders, obstructions, or other means may be used to accomplish this angle limitation. Bullet traps and targets will not be positioned to allow a shooter to fire outside LFSH limitations.
- d. Diversionsary Devices.
- (1) Shooters must wear fire-resistant gloves during diversionsary device deployment.
 - (2) Full-charge diversionsary devices must not be deployed into occupied rooms or hallways.
 - (3) Functional reduced charge diversionsary devices may be deployed into occupied areas during training activities.
 - (4) Instructions on the approved procedures for the safe handling of dud diversionsary devices will be provided to all participants and will be followed at all times.
- e. Reduced Lighting Operations. For reduced lighting operations ensure that:
- (1) the LFSH lighting system is operational;
 - (2) the shooters' lighting systems are operational;
 - (3) chemical light sticks or other effective means are available for identification of both shooters and instructors. Chemical lights for instructors must be a different color from those worn by shooters so that instructors may be easily identified; and
 - (4) the assault is practiced during lighted conditions prior to conducting the assault under no- or low-light conditions.
- f. EOCP. All LFSHs must be equipped with an EOCP to maintain positive observation of live-fire activities.
- g. PPE. All personnel using an LFSH must adhere to risk controls identified in LFSH training course risk analyses, to include PPE requirements.
- h. Weapons Loading and Unloading. Weapons loading and unloading must be done under the supervision of an instructor at a specially designated area in the vicinity of the LFSH.

6. USE OF STEEL TARGETS. The design and method of deployment of steel targets must be approved by the range master. Lesson plans required for all training must include information on how to conduct the training safely by conducting a documented risk analysis of the training activity. A sample risk analysis for shooting steel targets is provided in Appendix B-2.
 - a. Steel Target Design and Construction.
 - (1) The following fundamentals must be considered in steel target design and construction.
 - (a) Safety. Targets must be capable of withstanding direct fire and either containing the effects or directing them in a safe, predictable direction.
 - (b) Simplicity. Simple designs generally function more reliably than complex designs. Targets that rely on gravity and/or kinetic energy to function are preferable to targets powered by electricity, pneumatics, or hydraulics.
 - (c) Durability. The training environment subjects the targets to extreme weather conditions, rough handling, and repeated impacts by high-energy projectiles. The design and construction of the steel target should maximize reliable functioning under all normal operating conditions.
 - (2) Steel Target Hazards and Precautions.
 - (a) Instructors, or range personnel at the firing line must position themselves directly behind the shooter or in such a manner to be able to observe and control the shooter safely.
 - (b) The shooter must shoot as straight “downrange” as is practical, because shooting steel at an angle increases the danger of ricochets and directs the fragments primarily in one direction.
 - (c) A minimum of four inches of material must be placed at the base of all steel targets to absorb fragments and to prevent ricocheting towards the shooter.
 - (d) Safe use of steel targets also requires studying the angles and fabrication concepts of the structural supports for the target and assuring that projectile fragments and/or ricochets will be safely directed away from the firing line.
 - (e) Steel targets must be checked for function and condition before and after a qualification/training activity or at any time damage is suspected.

- (f) Firearms instructors must continuously observe the results of firing on steel targets, particularly checking for any splatter back to the firing line area or any other areas used by personnel. If such splatter is observed, firing must be halted immediately and the cause corrected before firing is resumed.

- (3) The following guidelines must be used to select the appropriate steel for target surfaces.

- (a) Steel plate with a minimum of 200 Brinell Hardness (BHN) is intended for light handgun cartridge use. Only all-lead light target ammunition for calibers .22 through .38 may be fired at 200 BHN steel.

NOTE: High-velocity service ammunition must not be used on 200 BHN steel.

- (b) Steel plate with a minimum of 400 BHN is intended for heavy use from handguns and shotguns firing duty or training ammunition.

NOTE: Shotgun slugs or rifle ammunition must not be used on 400 BHN steel.

- (c) Steel plate with a minimum of 500 BHN is intended for heavy use from handguns, shotguns and rifles firing duty or training ammunition.

NOTE: Steel plate with more than 540 BHN is too brittle to be suitable for use as steel targets.

NOTE: Armor-piercing ammunition must not be used on any type of steel plate or target, regardless of the steel's hardness unless that target has been relegated to long-range use in accordance with an approved risk analysis.

- (4) The ballistic properties of the weapon system (the firearm and the ammunition) must be thoroughly understood and considered, coupled with the training objective, when determining the appropriateness of steel plate.

b. Structural Supports for Steel Targets.

- (1) Support structures must be located where they are not likely to be struck by projectiles or splatter, be designed to direct ricochets or splatter downrange, or be protected by deflectors that direct ricochets or splatter downrange. Structural supports must be shielded by a material (i.e., sandbags) capable of absorbing direct fire and splatter.

- (2) Steel targets and their structural support systems may tilt toward or away from the firing line, directing the splatter into the ground near the target, or downrange away from the firing line.

c. Target Condition.

- (1) Steel targets must be examined for deterioration (i.e., dimpling or cratering; concave or convex warping; cracks, joints and/or holes in the target surface) prior to and after every use and at any time during use that damage is suspected.
- (2) A deteriorated target must be removed from use or relegated to long-range use that has been approved through a risk analysis.
- (3) Steel targets used for close-range work that have one dimple or crater must be regarded as a hazard. Targets that contain dimples larger than one-sixteenth inch in depth must be removed from use. They can be repaired by using the proper techniques.
- (4) Concave Bowing.
 - (a) Targets that bow more than 10° must not be used. Instructors must use the following calculation to determine target bow. A straight edge is placed on the face of a steel target, ensuring contact at the top and bottom of the target. The point on the target face that affords the maximum air space bowing away from the straight edge is determined, and this distance is then measured. The formula to determine the maximum allowable depth of the bow for any specific length is: half the length of bowed portion of target x $\tan 10^\circ = \text{allowable depth}$. ($\tan 10^\circ = .17632$). See Figures 1 and 2 for an illustration of the measurement procedure.
 - (b) The target must not be used if the space between the straight edge and the face of the target exceeds the following examples:

TARGET HEIGHT	TARGET BOW
20"	1.7"
38"	2.9"
42"	3.7"

A target that has less than a 10° bow may be reversed 180° to the shooter and retained for use. Targets that bow 10° or more must be removed from service.

(5) Cracks, Joints, or Welds.

- (a) Some steel targets are designed with target elements that move independently of the main target (i.e., “flip-away” areas). If a hinge or joint is exposed, a target must be evaluated carefully to determine potential splatter zones. They must be monitored closely to ensure that fragments are not reaching the firing line and may require minimum shooter-to-target distances greater than other targets.
- (b) Hardened steel plate requires special welding techniques to attach brackets, hinges, and pivot points. Such attachment points must be protected by shields, sandbags, or other means and designed to minimize splatter.

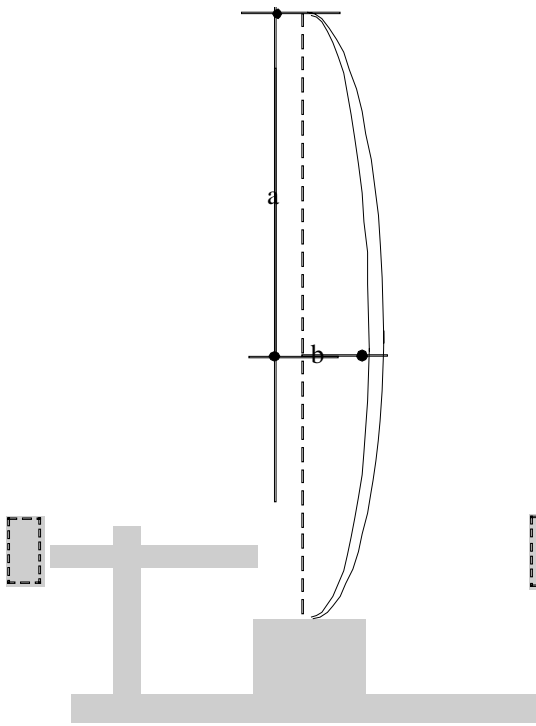


Figure 1

The formula to use to determine the maximum allowable depth of a target that is completely bowed is:

half the length of the target (a) x the tangent of 10° = allowable bow (b).

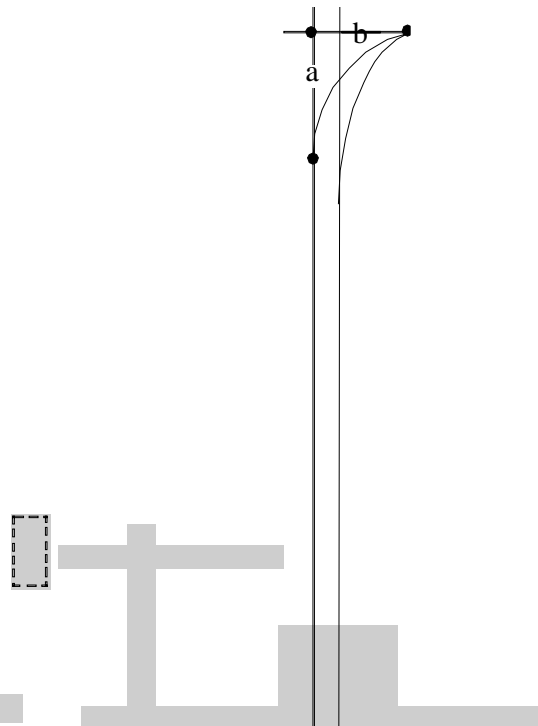


Figure 2

The formula to use to determine the maximum allowable depth of the bow for any specific length of the bowed portion is:

length of bowed portion of target (a) x tangent of 10° = allowable bow (b).

- d. Target Placement.
- (1) Distance of the participants and bystanders from the target. An observer area, if required, must be established in a safe area on the range. All movement by personnel on the firing range must be monitored strictly by instructors. The following minimum shooter-to-steel target distances must be used.
 - (a) 7 yards for handgun caliber firearms and shotguns firing shot (see Appendix B-4, Figures 1 and 5).
 - (b) 50 yards for shotguns firing slugs or rifles firing service ammunition (see Appendix B-4, Figure 4).
 - (c) Shooter-to-steel target distances for frangible ammunition will be established in consideration of the manufacturer's recommendation.
 - (2) Location of participants and bystanders relative to the target. Participants, observers, and bystanders must be located outside the splatter zone(s). Appendix B-4, Figures 2, 4, and 5 indicate maximum distances participants, observers, and bystanders could be either side of the gun-to-target line. These maximums are calculated based on the angle of the splatter and the minimum allowed distance to the target. To minimize the likelihood of injury, all personnel on the range must be behind the shooter(s) and as close to the gun-to-target line(s) as practicable.
 - (3) Distance and angle of multiple targets relative to each other. When using multiple targets, each target must be placed outside the splatter zone of every other target, positioned to prevent splatter, or shielded to prevent secondary splatter (see Appendix B-4, Figures 2 and 3). Instructors must review the course of fire for any potential signs of splatter hazards that will require increased shooter distances. Instructors must ensure physical controls are in place for identified hazards. One option is to place barricades (usually wood) between the targets.
 - (4) The ability of the targets to move on projectile impact. When using targets that move or that may be struck by follow-up shots, instructors must ensure that the angle does not change in a direction that causes the splatter to come back up range or ricochet toward other occupied areas.
- e. PPE. Additional PPE is required for all personnel when firing on steel targets. Hats with brims must be worn in addition to approved eye and hearing protection unless wearing approved goggles or night vision goggles and/or tactical helmets.

CHAPTER II - RANGE DESIGN CRITERIA

1. PURPOSE. This Chapter presents design criteria for Department of Energy (DOE) live-fire ranges for use in planning new facilities and major rehabilitation of existing facilities.
2. PLANNING FACTORS. All applicable local, State, Federal, U.S. Environmental Protection Agency, Occupational Health and Safety Administration (OSHA), and National Environmental Policy Act requirements must be addressed and be reviewed annually (at least every 12 months) to incorporate any requirements changes that occur.
3. PLANNING OVERVIEW.
 - a. General Considerations.
 - (1) Live-fire range design must: (a) promote safe, efficient operation; (b) include provisions for ease of maintenance; and (c) be affordable to construct and maintain.
 - (2) Live-fire ranges must be designed to prevent injury to personnel and to prevent property damage outside the range from misdirected or accidental firing and ricochets. They must also be designed to direct ricochets away from the firing line inside the range.
 - (3) An open range may be established provided that enough distance and land area available to allow for surface danger zones (SDZs) appropriate for the weapons to be used. Lack of SDZs may require baffled ranges. Extreme weather conditions may necessitate indoor ranges.
 - b. Type of Range.
 - (1) Range requirements must be considered when determining the type and size of the range and the material to be used.
 - (2) The range must be suitable for training and qualifications for all courses of fire used on the site, as set forth in Section C.
 - (3) The range must be designed for shooting day and reduced lighting DOE firearms courses, moving targets, multiple targets, and advanced shooting courses that may be required by the site.
 - (4) When determining whether the facility will be an indoor, open outdoor, partially baffled, or fully baffled range, the decision-making process should include site weather conditions, available land, available funding, and environmental, safety, and health considerations. The following additional factors must be considered.

- (a) How many shooters must be accommodated?
 - (b) Will emphasis be on training or competitive activities?
 - (c) What types of firearms and range of ammunition will be used?
(See Table 1.)
 - (d) Will the facility be used exclusively by DOE or will it be open to other organizations?
 - (e) What special uses will be made of the facility, e.g., advanced training, special weapons, or explosives?
 - (f) What lighting will be required, and what lighting is desired?
 - (g) What administrative space will be needed?
 - (h) What types of target mechanisms will be used?
 - (i) Will spectator safety areas be needed?
 - (j) What types of acoustics will be needed?
 - (k) How will lead contamination be controlled?
 - (l) Where will bullet traps be needed?
 - (m) Where will firearms cleaning and maintenance be performed?
- c. Site Selection Preparation. The site selected must accommodate the required facility. It must meet acceptable standards for safety and have sufficient space, access, and acceptable zoning and construction costs. Land acquisition costs, future land values, and possible restrictions must also be examined. To ensure the project is feasible the following data should be considered.
- (1) Documents. Copies of specific site, environmental, and construction criteria; applicable mandated regulations from the State, county, and local authorities; copies of ordinances, zoning regulations, soil conservation standards, health department requirements, and any other regulations that may pertain to the project should be obtained.
 - (2) Alternate Sites. Identify alternate sites, because one or more of the potential sites may be unsuitable or construction costs may be prohibitive.
 - (3) Technical Data. Gather technical data relevant to each site, including zoning maps, aerial photographs, topographic maps, and onsite ground and aerial information.

- d. Considerations. The criteria to be considered in this process are:
- (1) environmental restrictions, e.g., Endangered Species Act, Wilderness Act, and air and water pollution criteria;
 - (2) access, e.g., is it adequate or must a roadway be constructed to the site;
 - (3) construction cost, e.g., berms, baffles, barriers, earth moving;
 - (4) other restrictive Federal or State statutes and local ordinances; and
 - (5) community growth, especially in areas where urban growth is rapid. Escalating property values may make it unwise to construct in a particular area.
- e. Preliminary Design Stage. The following preliminary design process is to be followed.
- (1) Prepare:
 - (a) a preliminary layout sketch of each site;
 - (b) a draft document, which should include specifications for applicable zoning, building codes, environmental, safety, and health considerations, and other pertinent restrictions;
 - (c) alternative preliminary site plans showing different range layouts;
 - (d) a planning cost estimate; and
 - (e) a Risk Analysis Report.
 - (2) Submit all zoning and building permit applications for approval. Be prepared, via the draft document, to present and, if necessary, defend the proposal at public hearings before zoning boards, health officials, and other governmental bodies involved in issuing permits.
- f. Final Design Stage.
- (1) The preliminary site plans include a layout of the proposed range with its accompanying safety fan in a cross section and top view.
 - (2) The range master/manager, training manager, safety manager, industrial hygienist, appropriate operating personnel and public works engineer must review the design requirements during the planning phase, before the construction drawings are started, and during the construction phase.

4. OUTDOOR RANGE DESIGN.

a. Site Selection.

- (1) Outdoor range sites must be remote from other activities but accessible by road. SDZs must not extend across traveled roads, navigable waterways, railroads, or other areas.
- (2) To protect against unauthorized access, SDZs must be controlled while firearms are being discharged. To prevent future encroachment, SDZs must be recorded on site maps.
- (3) If other methods to control access to SDZs are not effective, then the zones must be fenced in. Natural barriers around the site, e.g., rivers, hills or a large drainage channel may be used to prevent encroachment and will ensure privacy. The best site is one with a natural backstop for projectiles to reduce the cost of constructing earth impact berms and to provide natural sound abatement.
- (4) Outdoor ranges should be oriented to eliminate firing into the sun. The range should be oriented to the north or slightly to the northeast. The ideal direction is between due north and 25° northeast.

b. Range Planning.

- (1) Firing into upward sloping land and land with natural backstops of hills or mountains is recommended.
- (2) Firing platforms, access roads, and targets must be elevated above the flood level.
- (3) The line of fire in rough terrain should be perpendicular to high ground. The line of fire on flat terrain should be free of knolls, ridges, and trees that reduce visibility.
- (4) Known distance ranges must be as flat or evenly graded as possible. If the grade between the firing points and target does not exceed 2 percent, then the firing points may be below the target.
- (5) Roads used for setting and servicing targets in impact areas and for maintenance of earth berm may be graded pathways. Roads in areas not subject to disturbance, e.g., vehicle parking areas, and roadways behind firing lines or out of range of weapons, must be designed for anticipated vehicle weight and usage.
- (6) The ground between the targets and firing line must be free of any hardened surface (smooth-surfaced walkways excepted) such as rocks or other ricochet-producing material.

- (7) The surface may be sodded or planted with low-growing ground cover.
 - (8) The surface must be smooth, firm, and graded to drain away from the targets. A slight side-to-side grade of 1 percent to 2 percent should be provided for storm water run off. For baffled ranges, the lateral slope must not exceed 2 percent because of the geometry of the baffle system.
 - (9) The overall size will be governed by the range distance and number of firing positions.
 - (10) Range distances from the firing line to the target are determined by the approved DOE qualification courses of fire for all weapons available for use by Protective Force (PF) personnel and by site-specific training courses of fire. The distances from the firing line to the target should be accurate to +.01 percent. It is important that any inaccuracy in the firing-line-to-target distance results in a greater rather than lesser distance (e.g., 101 yards for a 100-yard range instead of 99 yards).
 - (11) Shooters must have secure footing.
- c. SDZs. SDZs must be established to contain all projectiles and debris caused by firing ammunition and explosives (see Table 1.) SDZ dimensions are dictated by the types of ammunition, and types of targets, types of firing activities allowed on the range. A basic SDZ consists of three parts: impact area, ricochet area, and secondary danger area (Appendix B-5, Figure 1). Figures 2 through 6 illustrate the application of the basic parts in the design of SDZs for various kinds of range activities.
- (1) The primary danger area established for the impact of all rounds extends 5° to either side of the left and right limits of fire and downrange to the maximum range of any ammunition to be used on the range.
 - (2) The ricochet area is 5° to either side of the impact area and extending downrange to the maximum range of any ammunition to be used on the range.
 - (3) The secondary danger area is that area paralleling, and 100 yards outside of, the outermost limits of the ricochet area and extending downrange to the maximum range of any ammunition to be used on the range.
 - (4) Boundaries of SDZs must be posted with permanent signs warning persons of the danger of the live-fire range and prohibiting trespassing. The signs must be posted in a way that will ensure a person cannot enter the SDZ without seeing at least one legible sign (i.e., usually 200 yards distant or less).

- (5) Limit of fire markers, both external and internal, must be placed to denote right and left limits of fire. Where cross firing is to be conducted, internal limit markers must be emplaced to denote internal right or left limits of fire from specific firing positions.
 - (6) Ranges may be located parallel to one another if in compliance with Figure 19 (Section B, Appendix B-5) for separation.
 - (7) When there is insufficient distance to lay out a new range with the required SDZ or utilize other ammunition with a maximum range that does not exceed the SDZ, engineered or administrative controls can be used to control firing on that range. Permission to deviate from established SDZ requirements must be granted by DOE cognizant security authority and supported by a safety risk analysis.
 - (8) Administrative controls such as use of the low-ready position or engineered controls such as muzzle traverse/elevation limiters can be used to control the firearm. Natural terrain such as a mountain or a hill provides an excellent backstop for firing. The terrain should be high enough to capture rounds fired at up to a maximum 15° muzzle elevation.
 - (9) To change the size and shape of an SDZ, baffles may be installed. Partial and full baffle systems consist of the following components: overhead baffles, a canopy shield over firing points, bullet impact berm, and side berms, sidewalls, or side baffles. A fully baffled range must be constructed so all direct fire can be contained within the range (see Appendix B-5, Figures 7 and 8).
- d. Support Facilities. Range planners must consider the site-specific need for the following range support facilities.
- (1) Targets.
 - (2) Target storage.
 - (3) Bunkers, trenches, and protective barriers for personnel protection.
 - (4) Range control towers.
 - (5) Toilets.
 - (6) Range poles, banners, markers, and signs.
 - (7) Communication systems.
 - (8) Access and range roads.
 - (9) Parking areas.
 - (10) Potable water.
 - (11) Target maintenance.
 - (12) Ammunition storage.

- (13) Power.
- (14) Sewer.
- (15) All other necessary utilities.

Table 1. Maximum Range of Small Arms Ammunition.

Caliber	Maximum range of small arms ammunition (distance in meters)
.22 long rifle	1,400
.38 revolver	
Ball, M41	1,600
Ball PGU-12/8	1,900
.40 pistol	
Ball	1783
JHP	1908
Frangible	1000
.45 pistol	1,500
.45 submachine gun	1,600
.357 magnum	2,160
9 mm pistol	1,740
9 mm submachine gun	1920
.44 magnum	2,290
.50 machine gun	
Ball, M33	6,500
AP, M26	6,100
12 gauge shotgun, riot 00 buckshot	600
.30 rifle and machine gun	
Ball, M23	3,100
AP, M2	4,400
.30 carbine	2,300
5.56 mm rifle	
Ball, M193	3,100
7.62 mm rifle and machine gun	
Ball, M80	4,100
Match, M118	4,800
40mm	
M79	400
M19 40mm	2200

e. Design Criteria.

(1) Firing Line Items. Provide the following components.

- (a) Floor Surface. The surface must be smooth, firm, and graded to drain away from the targets. A slight side to side grade of 1 percent to 2 percent should be provided for storm water runoff. Transverse firing line grading should match target line transverse grading. The distance between the firing line(s) must be sufficient to support the type of training conducted. Firing lanes must be clearly marked on the surface to match the targets. Depending on the number of personnel to be supported and the funds available, the following surfaces should be considered:

- 1 ground firmly compacted with mown grass;
- 2 sand or fine gravel;
- 3 wood decking of sufficient thickness and support to prevent movement; and
- 4 concrete topped with appropriate cushioning material.

- (b) Overhead Containment. On partially and fully baffled ranges, a ballistic canopy (see Appendix B-5, Figure 9) must be provided over all locations where a weapon may be expected to be discharged (firing line, by definition). Figure 9 represents one construction approach, but the canopy must contain the direct fire effects of the most energetic round fired on the range. This canopy must begin at least 3 feet behind the firing line. General structural requirements may dictate more distance. The canopy must extend forward a distance of 13 feet minimum) that will work geometrically with the first overhead baffle in preventing a weapon from firing directly out of the range (see Appendix B-5, Figures 16 and 17). The canopy must be constructed of ballistic material with sacrificial cladding as described below. Sound reduction ceiling waffles should be considered. Weather roofing is required above the ballistic material and it must slope sufficiently to drain.

(2) Firing Point. The depth of the firing point is determined by the shooting activity, e.g., rifle firing requires more depth than pistol firing.

- (a) The minimum depth of the firing point is the area required for the shooter, shooter's equipment, scorers, and range officers. For example, a pistol range might have a firing line approximately 6 to

10 feet deep, while a rifle range would have a firing line up to 20 feet deep. This variation is based on available space, type of shooting, size of target frames and carriers, and the spacing of target frames or carriers.

- (b) For rifle ranges, each firing point must be 9 feet wide (see Appendix B-5, Figure 10). Firing lanes for pistols and shotguns must be 5 feet center to center (see Appendix B-5, Figure 11).
- (3) Ballistic Material. The purpose of this material is to absorb, deflect, or fragment projectiles. Material for baffles on partially and fully baffled ranges is shown in Appendix B-5, Figures 12 and 18. Wood that is used must be of middle grade exterior timber or plywood. Timber in contact with the ground must be pressure-treated for the purpose. Avoid exposed connectors if possible. Refer to Table 2, Thickness of Material for Positive Protection Against the Caliber of Ammunition Listed, for the thickness of various materials.
- (4) Sacrificial Cladding. Provide ¾-inch thick plywood with a ¾-inch air gap on any surfaces (baffles, wing walls, metal connectors, etc.) that are within 11 yards of the firing line to prevent back splatter.
- (5) Firing Line Cover Material. The firing line should be covered to protect the shooter and allow activities to be held regardless of the weather. On ranges with several firing lines the cover is generally installed at the longest firing distance. The firing line covers described below are for shelter only and must not be confused with the ballistic firing line canopies required on baffled ranges. The material, which can be used for firing line covers, includes wood, concrete, steel, and plastic. Most covers are constructed from wood products and use a shed or gable roof design. In some cases, corrugated metal or fiberglass roofing material can actually increase sound levels at the firing line and in areas around the range. Therefore, to reduce noise, corrugated metal or fiberglass roofing material should not be used unless it is acoustically treated. The structure should be designed to include the following:
 - (a) the shed roof should have a 15 cm (6 inch) cavity filled with fiberglass insulation (or equivalent) and be enclosed on the bottom with 19 mm (¾ inch) plywood or insulation board. Although this will not provide a completely effective sound barrier, sound waves will strike and penetrate the inside layer of plywood and the sound will be reduced;
 - (b) a plywood shed roof should have a 15 cm (6 inch) hollow core enclosed with a small grid mesh screen and a six-mil polymer barrier to retain the insulation. The intervening space should be

filled with blown-in insulation to trap sound waves and reduce the drum effect of an open roof; and

- (c) a gable roof has a large hollow area above the joists; however, additional sound damping materials should be installed to reduce the drum effect and the sound pressure level as they are reflected onto the firing line area. The underside of the roof surface will require a minimum of 4 inches of insulation to fill in between the rafters and a minimum of 3 inches of insulation above the ceiling and between the joists. This will reduce the drum effect caused when sound waves strike surface material (e.g., corrugated metal) and will absorb a portion of the reflected sound waves.
- (6) Surface Material. Positions should be hard surfaced (e.g., concrete, gravel, wood, asphalt, or sod).
- (a) For ranges where prone shooting is conducted, gravel or similar materials may cause difficulty for the shooter. When the surface material is concrete or asphalt, shooting mats or padding will be required when the kneeling or prone positions are used.
 - (b) For ranges with multiple firing lines, hard surfaced firing lines located downrange of another firing line should be recessed or shielded from bullet impact to avoid ricochets off exposed edges.
- (7) Landscaping. The site must be landscaped to provide for erosion control, noise abatement, maintenance, appearance, fire protection, and safety.

NOTE: Any landscaping will complicate the removal of lead in the berms, especially on impact surfaces, and will create higher maintenance costs.

- (a) Berms should be planted with grass to prevent erosion. Ground cover is acceptable on existing berms that have been maintained and where erosion is not a problem.
- (b) When grass is selected as a ground cover, it should be appropriate for the geographic area and must readily grow and provide good coverage. The degree of shading caused by overhead baffles will determine the type of grass for the range floor. Use grasses and cover for earth berms that will not be accessed by moving equipment so that natural growth heights will be acceptable. In areas where the soil is poor or extremely sandy, plants such as Bermuda grass, ice plant, or vine root can be used to control soil erosion.

- (c) Heavy landscaping may be used to cut down on noise transmission. Plants and trees may be planted behind the firing position shelters to alleviate noise transmission problems. Soundproofing the firing line structures should be considered in problem areas. Trees should be kept away from firing lines to allow range control officers to see all shooters.
 - (d) For windbreaks, trees may be planted along the length of the range with partial side berms or wing walls where strong prevailing crosswinds are problems to shooting accuracy.
 - (e) Densely planted rows of fast growing, compact, and thorny shrubs may be planted below the trees at ranges with partial berms or wing walls to abate noise, prevent encroachment, and alleviate crosswind problems.
- (8) Target Line and Mechanisms. Components must be as follows.
- (a) The target line must be a minimum of 30 feet from the toe of the impact berm. The distance between targets must be the same as the distance between firing positions.
 - (b) Target line bases must match grading with the firing line. Mechanical target support bases must be protected from the direct line of fire. They may be buried flush with the ground or placed behind a protective wall. Note that a small raised earth berm at this location generates significant ricochet. The complexity of the mechanism will dictate the protection requirement. See Appendix B-5, Figure 13 for wall or trench protection of high cost target line mechanisms.
 - (c) Target supports can be made of steel angles and channels, PVC pipe or wood. Do not use metal parts within 33 feet of the firing line where direct fire strikes are anticipated. Discharging weapons close to metal surfaces is extremely dangerous. Present the smallest surface area that is structurally sound to the line of fire to minimize ricochet. Design the target holders for easy and inexpensive replacement. Portable, self-supporting 2- by 4-inch wood frames or 2 by 2s placed into buried PVC pipe work well on simple ranges. The full face of the target must be visible to the shooter.
 - (d) Turning targets and the display time are at the discretion of the user. Commercially available, electrically motorized target carrier and electronic scoring systems should be considered where economically feasible.

- (e) On open ranges, a single target line with multiple firing lines is preferred. On partially or fully baffled ranges, in most instances, a single firing line with multiple target lines will produce the most cost effective range because of the firing line canopy. An extremely advanced target mechanism may be significantly more expensive than multiple canopies used to shift the advantage.
- (9) Impact Structures. The structure varies depending on the type of range. Natural terrain such as a mountain, cliff, or steep hill may be incorporated into impact structures provided the completed structure complies with the minimum requirements of this Section. Acceptable structures by range type are listed below.
- (a) For open ranges, the top elevation of the earth impact berm must be 26 feet above the range surface for ranges 100 yards or greater in length and 16 feet above the range surface for ranges 50 yards or less in length. The impact berm must extend 50 yards beyond the target line ends for 100 yard ranges and 16 feet, or until joining with the side containment, if provided for ranges 50 yards or less in length.
 - (b) The suggested elevation may be met by designing a combination of earth berm and vertical baffle (see Appendix B-5, Figure 14). The earth berm portion should have a top elevation of 16 feet above the surface of the range. The vertical baffle must be constructed of ballistic material and designed to withstand local seismic and wind loads. This combination arrangement would reduce the footprint and the amount of material in the earth berm.
 - (c) The preferred slope of the impact berm face is 1 to 1 or steeper. The steeper the slope, the more likely the berm is to absorb projectiles. The top should be 10 feet wide. The impact slope should be constructed with a 3 foot layer of easily filtered soil (to reclaim the lead projectiles) free of boulders, trees, rocks, stones, or other material that will cause ricochet. The rear slope should be appropriate to the native soil and maintenance requirements.
 - (d) For partially and fully baffled ranges, the top elevation of the impact structure will vary depending on the overhead baffle and impact structure arrangement. The impact structure for a partially baffled range can be: standard impact berm, bullet trap, or hybrid. For fully baffled ranges, the impact structure must be a bullet trap. In all instances, the impact structure must connect to the side containment. The top of the berm must be at an elevation 5 feet above the point where the highest line of direct fire can strike the berm.

- (e) Outdoor bullet traps can be constructed by placing the last vertical overhead baffle over the last target line and placing a sloped baffle to connect from the top of the earth berm to the back of the last vertical baffle. The bottom of this lower sloped overhead baffle must be 2 feet above the highest point on the berm where direct fire might strike. See Appendix B-5, Figure 15 for material and construction details. Rainfall runoff from the sloped baffle onto the berm must be considered.

Table 2. Thickness of Material for Positive Protection Against the Caliber of Ammunition Listed.

Cover material	Caliber and thickness required to stop penetration		
	5.56 mm	7.62 mm and Cal. 30	Cal. 50
Concrete (5,000 lbf/in ²)	5 inches	7 inches	12 inches
Gravel-filled concrete masonry units	8 inches	12 inches	24 inches
Broken stone	14 inches	20 inches	30 inches
Dry sand	16 inches	24 inches	32 inches
Wet sand	25 inches	36 inches	48 inches
Oak logs (wired)	28 inches	40 inches	56 inches
Earth	32 inches	48 inches	60 inches
Packed or tamped	35 inches	52 inches	66 inches
Undisturbed compact	38 inches	56 inches	72 inches.)
Freshly turned			
Plastic clay	44 inches	65 inches	100 inches
NOTE: Figures are based on new material. Degradation may occur over time.			

- (10) Side Containment. For partially and fully baffled ranges (Appendix B-5, Figures 7 and 8), the top elevation of the side containment must geometrically mate with the overhead baffles to be high enough to prevent any direct fire from exiting the range. Full-side height containment must extend 3 feet to the rear of the firing line. Locate the side containment at

least 10 feet outside of the centerline of the outermost firing lane.
Construction may be in the following forms.

- (a) Earth Berm. Construct earth berms to an inside slope of 1 to 1.5. If native soil characteristics will not produce a stable slope at this angle, provide geotechnical fabric reinforcement in the fill. The top width of the berm must be at least 10 feet. No rocks are permitted in the top 3 feet of the inside surface. Generally, earth berms cannot be used on partially or fully baffled ranges; however, earth berms are permissible if the firing range is small and the overhead baffle and berm geometry intercept ricochets.
 - (b) Continuous Walls. Construct continuous walls of ballistic material to withstand local wind and seismic loads. Provide sacrificial cladding to 13 feet forward of the firing line and 3 feet behind the firing line. Continuous walls are preferred for fully baffled ranges.
 - (c) Wing Walls. Wing walls (side baffles) are discontinuous side protection set at 45° to the line of fire. Locate the wing walls so that they are overlapped by 6 inches based on any line of fire that may strike them. Construct the wing walls of ballistic material to withstand wind and seismic loads. Additionally, provide sacrificial cladding on wing walls closer than 30 feet to the firing line.
 - (d) End Walls. End walls may be constructed at the firing lane edge on the firing line in lieu of extending side containment 3 feet behind the firing line. Walls must be long enough to close off any line of sight between the end of the side containment and the rear 3 feet mark. The end walls must be constructed of ballistic material with sacrificial cladding extending from the canopy to the firing line surface.
- (11) Overhead Baffles. Overhead baffles must be located so that no direct fire can exit the range from any firing position. The first overhead baffle must be geometrically coordinated with the firing line ballistic canopy (see Appendix B-5, Figure 9). The top elevation of the top of each following baffle must be 6 inches higher than a line of fire that just clears beneath each preceding baffle (see Appendix B-5, Figure 16). Overhead baffles should be the same height and spaced apart down range to achieve the required geometry (see Appendix B-5, Figure 17). The last baffle must be placed such that the line of fire will strike the impact structure no higher than 5 feet below the top elevation of the structure. On a fully baffled range, the last overhead baffle must be over the last target line.

- (a) On partially baffled ranges, overhead baffles must extend laterally to within 1 foot of the side containment. On fully baffled ranges, the overhead baffle must tie into the side containment.
- (b) The vertical dimension of an overhead baffle when it is vertical varies with the number and spacing of the baffles. Normally the height is between 5 and 8 feet when considering structural support size and costs.
- (c) The baffles must be constructed of ballistic material. Baffles within 11 yards of the firing line must be covered with sacrificial cladding. See Appendix B-5, Figures 12 and 18 for possible configurations.
- (d) Space the structural columns as far apart laterally as possible to open firing lanes. If possible, do not construct columns within the range. Design columns or beams to withstand local wind and seismic loads and provide protective steel plate on the faces of the columns exposed to the firing line in accordance with Appendix B-5, Figures 12 and 18. Provide sacrificial cladding if the column is within 10 yards of the firing line. Overhead baffles may be placed on a flatter slope and overlapped to function as firing line canopies if multiple firing lines are to be used (see Appendix B-5, Figure 17). This arrangement is cost effective for baffled combat lanes.

5. INDOOR RANGE DESIGN.

a. Use of Indoor Ranges.

- (1) Indoor ranges must be designed so projectiles cannot penetrate the walls, floor or ceiling, and ricochets or back splatter cannot harm range users. Considerations must be made for cleaning of all surfaces and handling of hazardous wastes.
- (2) Lead exposure requirements must be reviewed for applicability.

b. Site Selection.

- (1) Walls and Partitions. Indoor ranges must incorporate walls and partitions capable of stopping all projectiles fired on the range by containing or redirecting bullets to the backstop.
- (2) Existing Buildings. If there are existing drawings of the facility, copies should be obtained from the original owner, architect, engineer, builder, or building permit. If original drawings of the building are not available, a sketch can be made of each floor of the building with a special emphasis

on the load-bearing walls. The following considerations should be used when making the initial evaluation of an existing building.

- (a) General Construction. Buildings constructed of wood products should be avoided. Modifications to reinforce the structure to support metal backstops or to reduce fire hazards may not be cost effective.
- (b) Exterior Walls. The type of exterior wall construction (e.g., masonry, wood, concrete, metal, combination, other) should be identified. Masonry buildings should be given primary consideration, especially those constructed on concrete slabs.
- (c) Floors, Walls, and Ceilings. Floors, walls, and ceilings must be able to contain a bullet fired, as well as the sound.
 - 1 The ideal wall is made of poured concrete a minimum of 6 inches thick.
 - 2 To aid in range cleaning, concrete floors must be finished so they have a nonporous surface.
 - 3 Ceilings should be 8 feet high and enclosed to reduce air turbulence created by ventilation systems.
 - 4 Evaluate structural support designs of older buildings from the standpoint of the ability to withstand new loading. Original design considerations usually do not allow for installing heavy backstops and other range equipment.
 - 5 To decide if modifications are necessary, slab buildings must be analyzed carefully to determine the capacity for floor loading. If there are no floor drains and it is economically feasible, modifications should also include adding one or more floor drains.
 - 6 Ceiling joists may require strengthening to support baffles and shielding material.
- (d) Electrical. Electrical needs may require the installation of heavy duty wiring both internally and externally to accommodate added power needs of range ventilation, heating, lighting and target-carrier mechanisms.
- (e) Plumbing. Plumbing does not usually require major modifications; however, heavy metals may be prohibited by area wastewater treatment collection systems. Therefore, an approved filtration

system may be necessary for disposal of hazardous waste material; e.g., lead.

(3) Precast Buildings.

- (a) Precast concrete companies can provide complete precast buildings (job site delivered) if engineering specifications for steel placement are provided on a set of plans (drawings) for the proposed building.
- (b) Precast assembly allows for the installation of a roof design more suitable for an indoor range. Gabled or hip roof designs must not be used.
- (c) Hollow, precast concrete panels provide an option to bar joists, eliminating bullet ricochet or splatter. A flat bar joist design is the recommended alternative to hollow, precast concrete panels.
- (d) The flat roof design also provides support for heating, ventilating, and air conditioning (HVAC) equipment outside of the range, which saves space and reduces the cost.

(4) New Construction. New indoor construction projects require the same guidelines as existing buildings; however, there is the advantage of building a structure specifically for an indoor shooting range.

c. Range Planning. Design work for ventilation, wall structures, floors, ceiling, acoustics, backstops, and lighting will depend on how the range will be used.

- (1) A determination for the type of building required would include the following considerations.
 - (a) Can the range be built in an existing building, or is a new one required?
 - (b) How large should it be?
 - (c) How many shooters will it be expected to serve?
 - (d) Will it be used for competition?
 - (e) Should space be allowed for classrooms?
 - (f) How much will the facility cost?
- (2) The planning process must include:

- (a) obtaining ordinances, zoning regulations, building codes, soil conservation regulations and other information pertaining to legal requirements;
 - (b) for evaluation, identifying a site for a new building or several existing buildings that may have the suitable design characteristics; and
 - (c) gathering other technical information relevant to the project. This information includes zoning requirements, onsite information and range design criteria. Local zoning codes or health department regulations normally will provide answers or solutions on how the project is to be handled.
- d. Design Criteria. Based on the site selected, type of shooting, number of users, and site layout, the next step is to design the facility by preparing detailed drawings showing specifications and necessary dimensions. The four main considerations for indoor ranges are shooter needs, type of shooting activity, number of firing points, and number of users. Special consideration must be given to ventilation, lighting, safety baffles, and backstop design. The following standard and optional features for indoor ranges should be considered.
- (1) Backstops and Bullet Traps.
 - (a) The design of a backstop or bullet trap is a contributing factor to the service life of the unit. Steel must be installed according to the type of ammunition to be used, and to proven angle configurations.
 - (b) The design criteria must be based on the planned use of the facility. Metal plates selected for use in a backstop or trap must resist repeated stress, according to the degree of stress applied. Necessary characteristics are resistance to abrasion, resistance to penetration, surface hardness, thickness, and alloyed strength to resist metal fatigue.
 - (c) The main backstop is generally a fabricated steel plate or series of plates used to stop bullets fired on a range. Backstop configurations and thickness of the plates will change according to type of shooting activity.
 - (d) Steel backstops with sand or water pits are common; however, a few indoor ranges use earthen or sand backstops.

CAUTION: Earthen or sand-filled backstops are not recommended because they can create health hazards for maintenance workers from silica and lead dust. They also cause excessive wear on ventilation fans.

- (e) Backstops must extend from side-to-side and from ceiling-to-floor to protect the end of the range completely from penetration by direct bullet strike, and prevent ricochets, back splatter, and splatter erosion of side walls.
- (f) There are four basic backstop and bullet trap designs used for indoor ranges: Venetian blind, escalator, Lead-a-lator®, and the angled backstop (45°) back plate. Other backstop designs exist, and should be researched for applicable use.
 - 1 Venetian Blind Backstop. Requires less space, but without proper installation and regular maintenance, it can cause back splatter problems from exposed edges of each main segment of the backstop. Keeping the exposed edges ground to original specifications is time consuming, difficult, and requires skilled personnel.
 - a To control back splatter, a curtain must be hung in front of the backstop. Tests have been conducted on materials including canvas, burlap, cardboard, insulation board, and synthetic rubber. Properly installed, these materials effectively stop back splatter. Walls using insulation board or a synthetic rubber curtain are best.
 - b The main advantage of the venetian blind backstop is minimal space requirements. While, an angled plate or an escalator will use 14 feet of space, the venetian blind uses only 5 feet.
 - 2 Escalator Backstop. Sets up with flat steel plates laid out on a framework sloping away from the shooter. Between each series of plates, an offset allows a bullet sliding down the facing surface to drop into a hidden tray for easy cleanup. At the top or back of the backstop, a swirl chamber is provided to trap the bullets or bullet fragments as they exit the backstop surface. Once the bullet's flight ends in a spin-out chamber, the bullet or pieces fall into a clean-up tray.
 - 3 Lead-a-lator®. A variation of the escalator type backstop that uses a curved instead of flat piece of steel. The surface is concave and operates so that a bullet will follow the contour of the surface into a dry lead spinout chamber where it is trapped.

- 4 Angled Backstop (or 45° Inclined Plates). Uses a sand or water trap and has been the traditional alternative for indoor ranges.

 - a The angle of the plate should never exceed 45° from the ground. The 45° plate and pit backstop is relatively inexpensive, but there are several disadvantages. Sand traps require frequent cleaning to remove bullet fragments. Cleaning operations require workers to wear high-efficiency particulate air (HEPA) filter masks if material is removed dry. It is best to dampen the sand trap material before and during cleaning operations to eliminate dust. To maintain a healthier internal environment, frequent removal, disposal, and replacement of lead-laden sand is required. The surface must be continually raked to keep the sand level, and to guard against splatter as lead buildup occurs.
 - b The cleaning operations are easier when a water trap is used. However, a water trap requires chlorine and other chemicals to retard algae growth, and antifreeze in colder months to prevent freezing. Installing a water pit requires a different approach to foundations and footings, especially in areas affected by earthquakes or freezing.
- (2) General Range Cleaning. There are both dry and wet methods, which can be used to clean the range. The method selected depends on the frequency of use. The wet method is preferred when floor drains are available and by keeping materials wet during cleaning operations, microscopic dust particles are reduced or eliminated. When cleaning operations must be under dry conditions, workers must use the appropriate personal protective equipment (PPE) that has been established by local industrial hygiene personnel. After cleaning operations are complete, workers must shower and have work clothing laundered.
- (3) Backstop Steel Plate Specifications.

 - (a) Steel plates supported by concrete or masonry should be anchored by expansion bolts or toggle bolts, as suitable for construction, with flush countersunk heads, not more than 12 inches on center of all edges of each plate. Joints and edge lines should be backed with continuous half-inch plate no less than 4 inches wide. Bolts should pierce both the facing and back plates. Expansion bolts should penetrate concrete not less than 2 inches. Steel plates must have milled edges at all joints.

- (b) Joints must be butted flush and smooth. After the plates are erected, they must not have any buckles or waves. Exposed edges must be beveled at 42° to a fillet approximately ½-inch thick. There must be no horizontal joints in any steel plate work.
 - (c) Welding must meet the American Welding Society (AWS) code for welding in building construction. Steel plates joined at, and supported on, structural steel supports must be spot welded to steel supports not more than 6 inches on center.
- (4) Baffles, Deflectors, and Shields. Baffles on indoor ranges protect lighting fixtures, HVAC ducts, ceilings, and target carrier apparatus. Baffles are designed to protect against the occasional errant bullet but not for repeated bullet strikes.
- (a) To cover or protect vulnerable ceiling areas or range fixtures, baffles must extend the entire width of the range and downward. Spacing of baffles on a 50 to 75 feet range depends on the ceiling design. Range distance (firing line to target line) and height are factors. Ceilings must be impenetrable.
 - (b) Baffles or deflector plates must be used when modifying an existing building, especially in a building constructed of wood. This will prevent bullets from escaping or penetrating. Baffles should be a minimum of 10-gauge steel, which is to be covered with a minimum of 1 inch of soft wood to prevent back splatter. The wood traps the projectile, whereas bare steel redirects it downward into the range area. A wood surface must be applied to overhead baffles, because ranges with untreated baffles usually show significant damage to concrete floors and often complete penetration through wood floors.
 - (c) Baffles should be installed at a 25° angle as measured from the horizontal plane of the ceiling. The baffle size and placement depends on what surface areas require protection. For example, ceiling baffles are wider than side baffles. See Appendix B-5, Figures 14 and 15 for baffle placement.
 - (d) Unlike baffles, deflectors are installed vertically and horizontally and perform the task of redirecting wide-angle shots into the backstop area. Deflector shields protect pilasters, leading edges of sand traps, bottom edges of backstops, doorways, windows, ventilation registers along the wall, etc. Deflectors are generally not covered with wood, but may be. These devices are also installed at a 25° angle either to the wall surface or floor. See Appendix B-5, Figure 16 for deflector installation.

- (e) To protect ceiling areas, special impenetrable shields are installed above the firing line, especially in wood frame buildings.
 - 1 Shields must extend the entire width of the range and 12 feet forward of the firing line. Floor shields may be required on wood floors.
 - 2 Shields must be constructed from metal sheets according to planned use. For example, 10-gauge steel covered with a minimum of 1 inch of soft wood is effective in stopping most pistol calibers.

- (5) Floors, Walls, and Ceilings. Indoor range facility floors, walls, and ceilings must be impenetrable; therefore, an existing building must have a structural analysis to determine loading factors that may exceed original design specifications. Wooden buildings may require modifications to support the increased weight. Specifications for new construction call for either poured-in-place concrete, pre-cast concrete, or dense masonry block. Solid cinder block must be used in place of the hollow-core block. Specifications for modifying existing buildings call for adding additional materials to prevent bullet escape, which can be done with wood and steel laminated shields. Laminated shields can be constructed onsite by placing sheet-steel or steel plates between two sheets of 3/4-inch plywood. While this method is more expensive than the extended booth design, it allows for an open firing line and better visibility for the range officer, Walls should be treated beginning 3 feet to the rear of, and extending forward, of the firing line until all vulnerable surfaces are protected. Acoustical material should be applied to the surfaces to aid in sound control.
 - (a) Floors. The range floor should be constructed by using a single pour and a fine-uniform-aggregate mix of concrete. Reinforcement should be No. 4 steel rods placed 12 inches on center along with 6 by 6 inch 8/8-gauge welded wire fabric. This may vary according to soil conditions. Very large floor areas may require two or more pours with expansion joints between each slab.
 - 1 The floor should be designed so that it slopes down toward the target line, beginning at the firing line, 1/4-inch per foot.
 - 2 The floor should be no less than 4 inches thick.
 - 3 Floor size is governed by design. Increased size will result in increased costs for ventilation, lighting, heating, and overall building design. The decisions should be based on expected number of users versus overall cost.

(b) Floor Guards. Floor guards are provided to protect leading edges or protrusions, e.g., drains, traps or other protrusions from the floor area. Floor guards are designed to redirect errant bullets into the backstop area, which minimizes range damage.

1 Floor guards are constructed from 10-gauge steel and may be covered with wood.

2 Floor guards are installed horizontally along the floor surface parallel to the firing line.

3 Floor guards typically slope away from the firing line at a 25° angle to the horizontal.

4 Floor guards should extend only as high as necessary to protect exposed surfaces.

(c) Floor Drains. Floor drains should be constructed of cast iron soil pipe. The drain pipe should be attached to a lateral drain located 1 foot forward of the backstop floor guard. The drain pipe must lead to a filtration system approved by the cognizant environmental, safety, and health organization on the site.

(d) Walls. Poured concrete or masonry is preferred for wall construction, but wood may be used. Wall thickness must conform to acceptable engineering standards and comply with Federal, State, county and local zoning codes. Usually, no less than 3-inch thick, reinforced walls must be constructed to prevent the exit of any projectiles.

NOTE: This specification usually requires the use of steel or similar material where wooden walls are used. The size depends on building design, geological conditions, and weather elements. Size includes the height, thickness, and length of running wall.

(e) Ceiling. Ceiling material must reduce sound, protect lighting devices, reflect light and be impenetrable. Typically, ceilings include 10-gauge steel baffles, 2 by 4 feet white acoustic panels, and clear-light panels.

1 The ceiling must be a minimum 8 feet above the floor level and have an acoustically treated, smooth surface to allow for positive air movement downrange.

2 Baffles to protect adjoining areas should be above a false ceiling or designed into the roof/ceiling structure.

- (6) Shooting Booths. Commercial or locally built shooting booths may be desirable on pistol ranges; however, they are not recommended for rifle ranges. Shooting booth panels can provide an impenetrable barrier between shooters, reduce sound levels, restrict the travel of brass, and act as a spray shield when revolvers are used.
- (a) Shooting booths should be omitted for ranges that use only rifles.
 - (b) A shooting booth should never extend behind the firing line more than 18 inches, because an extension behind the firing line may obstruct the range control officer's visibility.
 - (c) Bullets fired from any firearm used on the range must not be able to penetrate booth panels. The booth panel must be able to withstand the impact of a bullet fired at any angle to the surface and at point-blank range.
 - (d) Design criteria for the construction of booth panels are as follows:
 - 1 cover the 10-gauge steel plate with a nominal 2 inches of soft wood. In a series of tests using 10-gauge steel plate, firing all lead bullets at right angles, the plate, covered with a nominal 2 inches of soft wood, withstood direct hits from all standard pistol calibers, up to and including .44 caliber magnum;
 - 2 use special acoustical materials to ensure that panels reduce muzzle blast effects on all shooters and range personnel;
 - 3 ensure that panels do not restrict airflow;
 - 4 ensure that panels do not restrict visibility of the firing line by the range officer; and
 - 5 construct panels so they extend from the floor to a minimum of 6 feet high. Panels should be ceiling height.
- (7) Target Carriers and Turning Mechanisms. An indoor range can be operated more efficiently and safely by installing a target transport system. This system may be a simple, hand-made device or a completely automatic, electrically powered system. Either one will enhance safety by eliminating the need to walk downrange to replace targets. Target carrier systems speed up range operations. A turning target mechanism is available that faces the target parallel to the line of sight and then turns the target 90° to the line of sight to begin the stated time period. The target carriers should position the targets in the approximate center of the backstop.

- (8) Control Booth. Range control booths must allow for maximum visibility and provide for easy access into and out of the range and ready area. The control booth should provide seclusion from and immediate access to the range environment. This design protects the range officer from frequent exposure to high sound levels and lead emissions.
- (9) Communications. A communications system capable of relaying range commands distinct and separate from the sounds generated by shooting activities is required. Communications systems must account for shooters who wear two pairs of hearing protectors, and persons who have substantial hearing loss.
- (10) Ventilation and Filtering Systems. This section deals with the design or redesign of ventilation systems for indoor firing ranges. Administrative or engineering controls must be instituted to prevent shooters from being exposed to airborne lead levels exceeding acceptable limits. Administrative controls are used either when engineering controls fail to reduce exposure or when range use exceeds HVAC system specifications. Administrative controls are especially applicable to reducing risks on existing ranges.
 - (a) Administrative controls used to reduce exposure levels on an indoor range must be rigidly followed and enforced, and compliance must be recorded in a log book for purposes of analysis and reference.
 - (b) The following administrative controls are provided and must be used where individuals are frequently exposed to airborne lead.
 - 1 Provide range maintenance personnel with appropriate personal protective equipment, e.g., safety glasses and respirators.
 - 2 Provide proper HEPA filter cleaning equipment. The equipment must be able to remove accumulated lead dust from floors, walls, and ledges, and must include attachments capable of removing lead-laden sand from the backstop area.
 - (c) A ventilation system must be installed that will provide clean air in the user's breathing zone to reduce to safe levels exposure to potentially dangerous materials.
 - (d) Adopt administrative controls that monitor and control exposure time for a given user and/or assigned range personnel.

(11) Lighting.

(a) A visually safe facility must be free of excessive glare and major differences in light levels. Therefore, floors and ceilings must be designed to provide light reflection. In the event of a power outage, battery-powered emergency lighting must be provided for emergency exits.

(b) Rheostat-controlled lighting fixtures, which are able to reproduce near-daylight and low-light conditions are best suited for indoor ranges. Range lighting involves three systems: general lighting, local lighting, and semi-direct lighting.

1 General lighting provides uniform light levels over the entire range area and adjoining areas and is usually installed in a symmetrical arrangement to blend with the architecture.

2 Local lighting supplements general lighting along the firing line to provide better visibility for those tasks associated with the loading and firing of firearms.

3 Semi-direct lighting distribution directs 60 to 90 percent of the lighting on the target with a small upward component to reflect from the ceiling and walls to soften shadows and generally improve range brightness. When ceilings are white, lighting fixtures mounted too close together create excessive glare.

(c) Lamp specifications for general lighting must be adjustable to provide 0.2 to 50 foot-candles of luminance measured at a point 7 yards from the target line. Local lighting should produce 0.2 to 60 foot-candles of luminance on the firing line. Semi-direct lighting on the targets should achieve 0.2 to 100 foot-candles of luminance. Glare should be reduced or eliminated by incorporating pastel colors in the interior design.

(d) Lighting designs should also seek to balance the color of light emissions. For example, most fluorescent fixtures produce high levels of blue, which alone are not suitable for indoor ranges. If fluorescent fixtures are used, green tubes or other light sources should be installed to balance the colors.

(12) Plumbing. Plumbing requirements specify that there must be a fresh water supply for personal hygiene and for range cleaning chores. There must also be a waste system for normal waste material and material removed from the range. An approved filtration system must be provided for range

cleaning waste. Floor drains should be connected to this alternate waste system. Restrooms, showers, and sinks should be connected to a regular sewer system.

- (13) Sound Control. Sound control on indoor ranges includes two distinct components: airborne and structure-borne sound. For airborne sound, all leaks into outer areas must be sealed, which includes airtight insulation around doors, windows, HVAC ducts, walls, and ceilings. Structure-borne sound reduction is necessary to protect adjoining, occupied rooms. Acoustical material must be applied to walls, HVAC ducts, floor, and ceiling areas.
- (14) Range Control. Range control provides rules and supervision that encourage safe and proper use of a range. Safety devices control the physical use of an indoor range and may include warning lights, alarm bells, switch locations, etc. For example, an indoor range with a door in the downrange area should be equipped with an alarm. The door could also be secured by a mortise lock or barred from within, but must remain a fire exit. Fire codes generally prohibit bars on doors that would delay escape from a building. Emergency personnel must be able to access the doors. Any door that can be accessed from the outside must be marked with warning devices to indicate when the range is in use. When installing doors on indoor ranges, refer to Life Safety Code National Fire Protection Association (NFPA) 101.
- (15) Target Carriers. Target carriers are used for the convenience of shooters to allow them to continue shooting without delay when target changes are necessary. For health considerations, target carriers keep shooters out of the high lead concentration areas and safely behind the firing line.
- (16) Heaters. Protected heating units should be installed behind and above the firing position to provide a comfort zone for shooters.
- (17) Gun Racks. Gun racks should be mounted behind the firing positions as an additional safety feature to reduce gun handling and to keep the range areas orderly. Appropriate material should be used to construct the gun racks, and the design must correspond to the weapons being used.

6. LIVE FIRE SHOOT HOUSE (LFSH).

a. Introduction.

- (1) An LFSH is intended for use in advanced tactical training for Security Police Officers (SPOs). Use of this facility includes individual tactics or Special Response Team (SRT) force option training. All shoot houses must have an elevated observation control platform (EOCP). The following sections illustrate recognized construction methods for shoot

houses. However, they do not eliminate the requirement for sound professional engineering design and validation.

- (2) Administrative controls, not directly related to design and construction, must be in place during facility use. The administrative controls and engineering design allow for a reduction in physical barriers which prevent rounds from escaping the facility. Designed barriers must prevent a round fired with a vertical upward error of 15° from escaping the facility.

b. Site Selection.

- (1) Site selection for an LFSH is similar to that for any range facility. Terrain features, noise, availability of utilities and access roads must be considered, as already discussed in previous sections for indoor and outdoor ranges. The LFSH should be placed adjacent to other range facilities whenever possible so that it may utilize the same support facilities, access roads, etc.
- (2) Facility design, target and shooter placement, and other administrative controls minimize the possibility of rounds being fired over the top of the walls and leaving the structure and mitigates the need for an SDZ outside the confines of the LFSH proper.

c. Design and Layout.

- (1) The interior layout of the facility is based on the mission and training requirements of the site. Facility design should incorporate a wide variety of room configurations. Some of the room configurations which should be considered are: multiple floors, an L-shaped room, stairwells, rooms within a room, hallways, and closets.
- (2) The floor plan design should accommodate the movement of target systems, bullet traps, and other equipment into and out of the LFSH.
- (3) Exposure to airborne contaminants for a fully enclosed LFSH must be controlled by adequate ventilation. The lighting requirements are similar to those for indoor ranges.

d. Wall Construction.

- (1) Wall Height. Exterior walls of the LFSH must be designed to absorb the most energetic projectile identified for use within the facility. Wall height must be a minimum of 8 feet. The wall height should allow maximum error angle of 15° from horizontal standing shooting distance from the target and still be contained by the wall which can be described by the following equation: Wall Height is equal to the Muzzle Height plus

0.27 (Tangent 15°) times the Target Distance. The following table assumes the muzzle height of 5 feet.

<u>Distance from Muzzle to Ballistic Wall (Feet)</u>	<u>Wall Height (Feet)</u>
11' 1"	8' 0"
13' 3"	8' 6"
14' 10"	9' 0"
17' 0"	9' 6"
18' 6"	10' 0"
20' 9"	10' 6"
22' 2"	11' 0"
24' 5"	11' 6"
25' 11"	12' 0"

If the distance from muzzle to ballistic wall exceeds the required wall height, other administrative, engineering or natural ballistic wall controls must be administered or considered such as shooter-to-instructor ratio, canopies, baffles, natural terrain, existing SDZ, SOPs, and training.

- (2) Ballistic Walls. Ballistic interior walls are the preferred method of construction. Where non-ballistic interior walls are used, additional administrative controls must be applied to target placement and team choreography. Ballistic walls are required in all cases where containment of the round and protection of personnel is paramount.
 - (a) Footings. Footings must be designed using the engineering criteria that best ensures structural integrity and stability of wall construction.
 - (b) Composite Walls.
 - 1 A combination of ¾-inch exterior grade plywood and steel is effective. Minimum thickness will be ¼-inch mild steel with an exterior grade plywood separated by a minimum of ¾ inch with a maximum of 1½ inches from the steel surface.

2 Other combinations are possible. The main criterion is that the wall must stop any round fired and contain bullet fragments.

(3) Non-Ballistic Walls. These walls are constructed of materials which offer no protection to personnel or equipment in adjoining rooms. Material used for these walls must not contribute to or enhance ricochet or splatter. Additional administrative controls must be applied such as target placement and team choreography.

e. Doors. All doors must be constructed of wood with no glass. Additionally, at least a portion of the rooms must have working doors, some opening inward, some opening outward, and doors opening left and right.

NOTE: All devices in the LFSH, such as brackets and hangers, used to secure walls to floors or secure doors must be covered or protected to mitigate any tripping or ricochet hazards.

f. Ceiling or Roofs. Ceilings or roofs can be of value when the shoot house is required for year-round use in areas with severe weather conditions. Exposure to airborne contaminants must be controlled by adequate ventilation. The lighting requirements for fully enclosed shoot houses are similar to those for indoor ranges. When training exercises require target placement above the wall design, the ceiling or roof must be protected, unless firing into an approved SDZ.

g. Floors.

(1) Floor construction must be selected for its ability to: absorb direct fire, minimize ricochets, and provide a walking surface free of slipping/tripping hazards. Floors should provide the same ricochet protection as walls. Options include:

- (a) exterior grade plywood floor constructed in accordance with American Plywood Association guidelines over smooth finished concrete;
- (b) concrete with brushed surface that minimizes slip and tripping hazards;
- (c) asphalt;
- (d) exterior grade plywood;
- (e) shredded bias ply tires; and
- (f) earth, free of rocks and debris that could cause ricochet.

- (2) Construction joints between walls and floors must be designed to contain projectiles within the LFSH.

h. Bullet Traps.

- (1) General Information.

- (a) Targets used in LFSHs must be placed so that fire is directed into a bullet trap designed to capture the rounds.
- (b) Bullet traps must be constructed to contain the most energetic projectile to be fired into them without dimpling/pitting the steel, and contain splatter and fragments in all directions. The size and shape of a bullet trap may be altered, but materials may not be substituted.

- (2) Specifications for construction.

- (a) 5.56mm conventional ammunition must not be used when shooting into bullet traps without further testing and development of containment materials. Only 5.56mm non-toxic frangible ammunition can be used.
- (b) Bullet trap steel must be set at a minimum 7° angle off vertical based on the most probable line of flight of the bullet. The greater the angle of the bullet trap, the less the deterioration on the steel plate. A bullet trap constructed similar to the DOE NTC design (see Appendix B-5, Figure 20) and then “leaned” against the wall of the shoot house with the base of the trap out approximately 1 foot provides adequate angle of the steel backing.
- (c) Bullet trap steel must be constructed of a minimum ¼-inch, 500 Brinell hardness, or equivalent, rifle grade steel. Quality assessment and ballistic test sheets certifying the grade and quality of the steel backing plate must accompany every steel backing plate utilized.
- (d) An anti-splatter shield must be used in front of the steel to prevent back splash. Two layers of 7/16-inch nylon-impregnated rubber belting material or ¼-inch self-sealing co-polymer sheeting are good examples of material to use.
- (e) An air space must be left between the face of the steel and the facing material to allow fragments to collect in the rear of the trap. A 1¾ -inch air space is an accepted construction standard.

- (f) Linatex™ rubber backing material between the fascia and steel backing plate is not recommended as it deteriorates rapidly when using 5.56mm frangible ammunition.
- (g) Plywood under the fascia material and in front of the steel plate is not recommended as the material deteriorates rapidly with 5.56mm frangible ammunition.
- (h) Bullet traps must be constructed for easy inspection of the inside of the fascia material and the front of the steel plate. Frequent inspection of the interior of the bullet traps must be conducted when rounds are fired into one general area.
- (i) The fascia material must be inspected, replaced or repaired when the integrity of the fascia material allows the round to start dimpling the steel backing plate.
- (j) The bullet trap steel backing plate, when used in the standard bullet trap design must be replaced when 50 percent of the material in one general area has been chipped away.
- (k) The requirement to “remove from service” any steel target when dimples exceed 1/16 inch does not apply. Steel backing plates must have a protective cover installed between the plate and the shooter which protects the shooter from back splash.

i. Elevated Observation Control Platform.

- (1) EOCPs enhance the ability to observe and to control the LFSH operations. Administrative controls must be considered when constructing the EOCP. Platform construction and location is based on training to be conducted. EOCPs must be constructed in accordance with all applicable regulations for elevated work platforms.
- (2) EOCPs must be constructed to:
 - (a) maximize instructors’ observation and control of the entry team fire and movement;
 - (b) facilitate communication between instructors on the EOCP and the floor;
 - (c) position the lowest point of the horizontal walking surface higher than the 15° vertical error for any target engaged;
 - (d) provide ready access;
 - (e) integrate instructors’ movement with team flow;

- (f) maximize instructors' ability to see shooters clearly at all times;
and
- (g) supporting structures must be placed in such a manner that they pose no additional hazards such as tripping, ricochet, splatter, etc.

CHAPTER III - ENGAGEMENT SIMULATIONS SYSTEMS

1. INTRODUCTION.

- a. Scope. Performance tests (PTs) must be used to realistically evaluate and verify the effectiveness of protective force (PF) programs, identify and provide training for personnel, identify areas requiring improvements, validate implemented improvements, and motivate PF personnel. PFs must, through training, maintain competencies needed to perform assigned tasks required to fulfill the PF mission.
 - (1) Engagement Simulation Systems (ESS) are primarily used to simulate conditions during PF PTs and training activities involving Force on Force (FoF) and deadly force-related situations. The use of ESS allows data to be collected to evaluate PF performance in numerous areas, e.g., individual and team tactics, firearms proficiency, tactical movement, deadly force training, etc. ESS also provides a means to validate protection strategies and provide hands-on training to PF personnel. The requirements contained in this Manual pertain to the use of ESS during the conduct of PF PTs and training activities. In many cases these requirements specifically address the conduct of FoF PTs; however, they must also be applied, as applicable, to PF Limited Scope Performance Tests (LSPTs) and training activities involving one-on-one and deadly force engagements.
 - (2) PF PTs and training activities must be conducted with the highest regard for the safety and health of personnel, protection of the environment, and protection of Government property. Safety issues must be considered from the inception to completion of these activities. DOE directives require that all applicable safety standards and requirements be met prior to conducting PTs and training activities involving the use of ESS and associated equipment.
- b. Types of ESS. There are five major types of ESS used within DOE for the conduct of simulated engagements during PF PTs and training activities.
 - (1) Multiple Integrated Laser Engagement Systems (MILES). MILES consist of weapons-mounted laser transmitters and harness-mounted laser sensors placed on potential targets (e.g., personnel, vehicles, buildings) to enable accurate and realistic assessment of the effects of PF and adversary weapons fire. Examples of MILES firearms and weapons include handguns, rifles, machine guns, light anti-tank weapons (LAWs), and claymore mines. MILES are primarily used during PF FoF exercises and LSPTs.

- (2) Marking Systems.
 - (a) Dye-marking cartridge (DMC) systems consist of specially modified duty handguns, submachine guns and rifles (using a replacement barrel) and non-lethal DMCs (a lightweight hollow plastic projectile that contains a colored, nontoxic marking compound) designed to allow for realistic decisional shooting situations during PF PTs and training activities.
 - (b) Paintball (PB) systems consist of paint guns, also called “markers,” that come in a variety of shapes and styles. They may be powered by carbon dioxide (CO₂), nitrogen (N₂) or compressed air. The projectile, or paintball, is a round, thin-skinned gelatin capsule containing colored liquid. The liquid is non-toxic, non-caustic, water-soluble, biodegradable, and rinses out of clothing and off skin with mild soap and water.
 - (c) DMCs and PB rounds have very limited effective and maximum range. Thus, both systems are used typically during LSPTs and training activities to simulate close quarters battle (CQB) and decision shooting situations.
- (3) Hybrid Dye Marking Cartridge/ESS Firearm. A firearm that has been modified or designated by a DOE-certified armorer as a DMC weapon that feeds, fires, and functions DMC ammunition. The modification reduces the ability for a live round to chamber in the weapon. Additionally, the weapon is mounted with a MILES transmitter.
- (4) Blank-Fire Systems. Blank-fire equipment consists of specially modified duty firearms (that cannot fire live ammunition or projectiles) and blank-fire cartridges (loaded with powder but contain no projectile) designed to provide realism during PTs and PF training on the use of deadly force and the escalation of the force continuum.
- (5) Inert Weapons Systems. Inert weapons systems consist of simulated firearms and weapons or actual firearms and weapons that have been rendered incapable of firing live or blank-fire ammunition. Inert weapons systems are typically used to simulate firearms and weapons during PF control and restraint training and LSPTs.
- (6) Other Types of ESS. Other types of ESS and associated equipment may be used during PF PT and training activities to simulate adversary and PF actions and real-world incidents. Pyrotechnics and smoke generators may be deployed to simulate fires and chemical agents. Hand-thrown smoke grenades may be used to cover adversary and PF tactics or to provide diversions. Practice or inert grenade systems can be used to simulate

thrown explosives and can be followed up by flash/sound diversionary devices, air horns, and other devices to simulate explosions.

2. SAFETY.

a. General Safety.

- (1) Safety is a major concern in any PT or training activity. Safety rules must be followed to minimize the potential for accidents/injuries during activities involving the use of ESS. Management, controllers, and participants must anticipate and react to unsafe situations. Realism must be achieved and safety must be considered in the actions of all participating personnel. Integrating realistic safety requirements into scenarios involving ESS enhances participant safety under both operational and ESS activities.
- (2) All PTs and training activities must be governed by plans and procedures that specifically address safety issues while remaining consistent with realistic evaluation and training. Risk assessments must include procedures for any materials, equipment and/or operations that are identified as potential hazards during the conduct of any scenario. Safety plans must cover facility safety concerns specific to scenarios being conducted. Preparations must also be made to respond with appropriate medical assistance to situations that could occur.
- (3) ESS PTs and training activities must be regulated by controllers and instructors who have authority regarding safety. Controllers and instructors are responsible for ensuring that all operations are conducted safely. Controllers, instructors, any participant, and/or any individual may stop an evaluation and/or training activity for safety reasons. Safety is paramount in exercise planning and execution.

b. Participant Responsibilities. The following paragraphs specifically address safety-related considerations that impact exercise personnel and/or equipment; however, they apply to all ESS activities. Personnel acting as adversary/opposition force (OPFOR) team and response force members must be briefed as to their individual responsibilities to include:

- (1) avoiding hazardous areas;
- (2) monitoring their own physical condition for signs of overexertion;
- (3) watching for other participants who appear injured or otherwise are in need of assistance, and immediately ceasing ESS activities in order to render aid and notify a controller or instructor;

- (4) reporting injuries, regardless of severity, to the nearest controller, instructor, or safety representative;
- (5) handling and using all ESS firearms and weapons safely as though they were live fire weapons;
- (6) inspecting issued MILES weapons and blank ammunition to ensure that no live ammunition and the proper blank ammunition is present, and that the MILES weapons and magazines, where used, are properly color-coded;
- (7) inspecting issued DMC firearms and DMC ammunition to ensure that no live or blank-fire ammunition is present, and that the DMC firearms and magazines, where used, are properly color-coded;
- (8) inspecting issued blank-fire firearms and blank ammunition to ensure that no live or DMC ammunition is present and that the blank-fire weapons, and magazines, where used, are properly color-coded;
- (9) inspecting inert weapons to ensure that they are incapable of operation and to ensure that no ammunition is present and that they are properly color-coded;
- (10) while conducting ESS activities, knowing what the participant should do in the event the PF Shadow Force is deployed and actions the Shadow Force will take;
- (11) limiting physical contact, during an arrest scenario, to that force necessary for searching and handcuffing while refraining from violent physical contact;
- (12) refraining from attempts to disarm a participant by grabbing their firearm or person;
- (13) ascending or descending from elevated positions by ladder, stairway, or other safe method; jumping from elevated positions only if necessary and safe;
- (14) avoiding hot propellant gases vented from weapons systems; and
- (15) avoiding taking outdoor positions near the ESS Vehicle Hit Indicator System which contains an explosive charge. (NOTE: The ESS Vehicle Hit Indicator System is designed to simulate and react to firearms fire. Blasts are vented upwards and usually do not present a hazard. Participants must be careful not to position themselves above or within 10 feet of the device while outside a vehicle.)

c. ESS Safety.

- (1) All firearms and weapons used in ESS exercises and training activities must be permanently modified and dedicated for ESS use only. The only permissible exceptions are the M-60, HK-21, FN M-249, and FN M-240 machine gun receivers. ESS modifications of these machine guns are limited to the barrel and feed tray, which gives them additional flexibility.
- (2) With the exception of single shot grenade launchers, MILES firearms must be equipped with approved blank fire adapters or blast deflectors.
- (3) Dedicated ESS firearms must not be reactivated for live-fire usage without the approval of the DOE cognizant security authority.
- (4) All MILES firearms must be equipped with live-round inhibiting devices or ported chambers, plus one or more additional engineered layers of safety, to prevent the accidental introduction of live rounds.
- (5) Only DMC firearms equipped with DMC conversion kits and DMC ammunition approved by the Office of Security may be used. All DMC conversion kits must be designed to inhibit live rounds from being chambered. If a factory “drop-in” kit is used to modify a firearm to use DMC, a DOE-certified armorer specifically trained in the installation of such a kit must accomplish the modification. DMC systems may be fired only at participants who are at least 1 meter (3.28 feet) away.
- (6) ESS firearms used in an exercise must be inspected by a DOE-certified armorer or firearms instructor prior to the beginning of the exercise, clearly marked as exercise firearms, closely controlled, and kept separate from any firearms not associated with the exercise. Approved color coding markings are:
 - (a) orange for MILES and blank-fire firearms and magazines, clips, and belts (first link);
 - (b) blue for DMC firearms and DMC magazines, clips, and belts (first link), speed loaders, and PB systems;
 - (c) blue and orange for MILES/DMC hybrid firearms; and
 - (d) red for inert firearms and weapons.
- (7) ESS firearms must not be loaded until authorized by a controller or instructor.
- (8) Blank ammunition must not be used in tactical exercises except with ESS equipment.

- (9) MILES firearms equipped with blank fire adapters or blast deflectors may be fired only at participants who are at least 10 feet away.
- (10) Maintenance and adjustments to laser transmitters must be performed only by the supplier or by qualified site personnel approved by the supplier.
- (11) ESS firearms must be cleaned after an exercise, according to a site's SOP, and repaired or removed from service, if necessary.
- (12) All ESS firearms must be inspected by a DOE-certified armorer and certified at least every 12 months. Requirements for certification as a DOE armorer are contained in Section B, Chapter IV, paragraph 4.a. All engineered layers of safety incorporated in an ESS weapon also must be inspected.

d. ESS Ammunition and Blank-Fire Adapters (BFAs).

- (1) Only blank ammunition magazines, clips, and belts (first link) that have been distinctively color-coded orange and modified for use with an ESS firearm may be used. The ESS magazine, clip, or belt when used in conjunction with a modified ESS firearm must prevent the inadvertent feeding and chambering of a live round. Caution must be exercised because a live round can be placed in the lip of some firearm magazines.
- (2) Only DMC ammunition magazines, clips, and belts that have been distinctively color-coded may be used. Caution must be exercised because a live round can be placed in a DMC magazine lip, or in some cases a DMC magazine can be fully loaded with live ammunition.
- (3) Blank, DMC, and PB ammunition must be stored separately from live ammunition and from each other, either in a different location or in a locked cabinet, and must be inspected prior to issuance by a controller or instructor.
- (4) Prior to each ESS PT and/or training activity and at the beginning of each scenario:
 - (a) participants must inspect their firearms and person to ensure that only the proper exercise ammunition (e.g., blank ammunition for MILES and DMC/PB ammunition for DMC/PB exercises) and properly equipped MILES and/or DMC firearms/PB systems are in use; and
 - (b) each firearm and all ammunition must be inspected by the responsible ESS controller/instructor to ensure that only the proper ammunition and properly equipped ESS are in use.

- (5) Manufacturers' recommendations for shelf life of DMC and PB ammunition must be followed.
 - (6) LAWs/Rocket Propelled Grenades (RPGs).
 - (a) LAWs/RPGs must not be cocked until the target is identified. If the simulator is not fired at a given target but is anticipated to be fired at another target during the exercise, it must be returned to the uncocked position until the target is sighted. If the simulator is not fired, it must be returned to an unloaded/tube empty position prior to turn-in.
 - (b) LAWs/RPGs must be used only in designated areas.
 - (c) LAWs/RPGs must be used only for training purposes when exclusion distances and conditions are established as though an actual LAW was being fired. The exclusion distance for the LAW/RPG is 5 feet to either side and 30 feet to the rear.
- e. Pyrotechnics, Flash-Sound Diversionary Devices, and Chemical Agents.
- (1) Pyrotechnics and explosive simulators must be consistent with the pyrotechnics list included in the DOE approved ammunitions list.
 - (2) Participants must never pick up thrown pyrotechnics, flash sound diversionary devices, or chemical agents, even one that appears to be a dud. Duds must be reported, as soon as possible after discovery, to the Senior Controller.
 - (3) Written and approved procedures for handling duds and expended devices must be included in PT procedures and applicable lesson plans. These plans and procedures must follow the manufacturer's disposal recommendations or site-approved procedures and must be implemented by properly trained personnel.
 - (4) Written and approved procedures for activities such as the wiring of pyrotechnics into vehicle electrical systems and the use of booby traps and trip wires must be included or referenced in PT plans/procedures. These activities must follow manufacturer's recommendations or site-approved procedures and must be conducted by properly trained personnel.
 - (5) Smoke and obscurant generating pyrotechnics.
 - (a) Smoke and obscurant generating pyrotechnics may not be used indoors or in confined spaces.

- (b) Planning for smoke use must address the possible effects on facilities, production processes, workers and other parties (e.g., nearby roads and vehicle drivers, adjacent facilities and workers, air intake systems).
 - (c) Participants must avoid unnecessary exposures to smoke systems by staying upwind of the smoke, where possible, by avoiding entry to the smoke cloud, by limiting the time traversing the cloud, and by choosing routes involving the least densities of smoke consistent with the tactical objective. Full immersion in high-density smoke for extended periods shall be avoided where possible. If immersion cannot be avoided, respiratory protection must be used as defined in the risk analysis for the training, performance test, or (FoF) activity.
 - (d) Thrown smoke generators must be deployed by persons trained in their safe deployment methods and knowledgeable of their potential hazards.
 - (e) When thrown smoke generators and other pyrotechnics are deployed in training or testing activities, adequate firefighting equipment and persons knowledgeable in its use must be readily available.
 - (f) Pre-activity safety briefings must address the safety concerns of the use of smokes and obscurants, the controls for the deployment of smoke, and the safety controls established to control and limit personnel exposures.
- f. Vehicle Safety. The following requirements apply to the use of vehicles during an exercise.
- (1) Vehicles must not be mounted or dismounted until after they come to a complete stop.
 - (2) All personnel in moving vehicles must wear seat belts at all times. Passengers may ride in the back of moving open vehicles provided that restraint devices are installed and used and they remain seated within the vehicle.
 - (3) Vehicle maneuvers (e.g., accelerations and decelerations, cruising, turns, etc.) must be accomplished in accordance with local vehicle operating procedures.

- (4) When a PT/training scenario requires a roadblock, it will be simulated by placing a blocking vehicle on the shoulder of the road and by ensuring that a controller is notified that a roadblock has been established. If the blocking vehicle's presence could effectively obstruct the roadway, the controller should not allow the vehicle being blocked to pass.
- g. Rules of Engagement (ROE). Specific ROE must be developed and documented for each FoF or man-on-man PT/training activity, as applicable.

3. MARKING SYSTEMS ACTIVITIES.

a. General Requirements.

- (1) All DMC/PB PTs must be monitored by a controller who is a Department of Energy (DOE) National Training Center (NTC) certified firearms instructor or has received specialized training.
- (2) All DMC/PB training activities must be conducted by a NTC certified firearms instructor.
- (3) Instructor/controller-to-shooter ratios will be dictated by the type of training/PT scenario. Participants must be familiar with the DMC firearm/PB system to be used in the PT or training activity.

b. Safety Considerations. In addition to the safety considerations described in previous sections, the following safety considerations specific to DMC and PB activities must be included in training or PT activities which utilize DMC/PB.

- (1) DMC/PB ammunition velocity could exceed the American National Standards Institute (ANSI) Z87.1 standard so protective eye wear must be ANSI or manufacturers' specification whichever is more stringent.
- (2) All DMC/PB equipment must be maintained and tested in accordance with manufacturer specifications.
- (3) All DMC/PB personal protective equipment (PPE) must be visually inspected prior to each use.
- (4) Helmets with spring loaded face shields must not be used during DMC or PB activities.
- (5) DMC/PB will not normally break vehicle glass that does not have defects or prior damage. However, if the glass is already cracked, a DMC/PB round may break it. Repeated or rapid fire on undamaged plastic or glass may cause breakage. DMC will dent most soft building materials

including drywall, plywood, paneling, and hollow core doors; however, they will generally not penetrate them.

- (6) Wearing clothes with a tight-weave fabric, such as that in military-type/field uniforms or coveralls, is required to cover and protect any exposed skin.
- (7) If body armor is used, it must be dedicated for DMC/PB use only.
- (8) Testing of face and eye protection equipment by subjecting it to firing of DMC and PB projectiles from the actual DMC firearms or PB gun to be used is recommended. Testing must also include concentrated full automatic fire when such firearms are to be used. For information purposes, the manufacturer of the Avon protective mask recommends that outserts be used on the lenses of its masks when used in DMC/PB exercises.
- (9) DMC/PB systems must not be fired at personnel closer than 1 meter (3.28 feet).
- (10) DMC ammunition must not be fired in standard, non-DMC modified firearms because plastic cartridge components could stick in the bore, causing a safety hazard.
- (11) Blank ammunition must not be fired in DMC firearms due to potential hazards from muzzle gasses and ejected material.
- (12) Face protection must provide protection from DMC/PB projectiles entering under the face mask when the wearer tilts his/her head back or looks upward.

c. Ammunition and Firearms Conversion Kits.

- (1) Only DMC firearms equipped with conversion kits, PB systems, and ammunition approved by the DOE cognizant security authority may be used.
- (2) All DMC/PB firearms must be distinctively color-coded blue.
- (3) All DMC firearms conversion kits must be designed to inhibit live rounds from being chambered.
- (4) DMC/PB ammunition must be used in accordance with the manufacturer's recommendations for storage conditions and shelf life. The marking compound in DMC/PB may solidify and harden in older ammunition. Poor marking performance may also be encountered with older DMC and

PB ammunition. Personnel may have increased risk of potential injury from DMC/PB ammunition projectiles if the marking compound becomes hardened through age or is used in cold temperatures.

- d. PPE. A risk assessment must determine the type of PPE required for the specific PT/training activity being conducted. The following PPE must be used when conducting training/PTs involving the use of DMC/PB during FoF and one-on-one engagements.
- (1) Eye protection.
 - (2) Full face and head protection, which includes covered protection for the ears (i.e., helmets specifically designed for use with DMC or duty equipment that provides equivalent protection).
 - (3) Hand protection (gloves).
 - (4) Groin protection.
 - (5) Throat protection.
 - (6) Hearing protection (optional—unless diversionary devices are being used or exercise is conducted in an environment that requires noise protection). Sound levels generated by DMC/PB use are below Occupational Safety and Health Administration (OSHA) requirements that require hearing protection.
- e. Target Training. Training may be conducted using DMC/PB systems to fire at training targets such as the DOE TQ-15, decisional targets, or other targets. Such training does not involve FoF or one-on-one activities.
- (1) Use of DMC systems for shooting training targets must follow the requirements of this Manual and normal live-fire safety procedures. Sites must evaluate the need for numbers and types of controllers and other exercise personnel based on the specific location and training to be performed.
 - (2) Provisions of DMC/PB training plans, controller staffing plans, procedures, and risk assessments must address protection of uninvolved persons. They include observers, plant workers, and others who might become exposed to hazards of DMC/PB if training targets are to be used in areas where uninvolved persons could be exposed. Potential hazards must be addressed related to using DMC/PB systems for PF PTs and training involving activities such as team movement,

CQB, breaching training, room entries, live-fire shoot house, and officer survival activities.

4. RULES OF ENGAGEMENT.

- a. Safety. Safety is a major concern in any ESS PT, and training activity and safety rules must be followed to minimize the potential for accidents and injuries during these activities. Management, participants, and controllers must caution and prepare participants to anticipate and react to unsafe situations. Realism must be achieved and safety must be considered in the actions of all participating personnel. Preparations must also be made to react with appropriate levels of medical assistance to situations that could occur.
- b. Halting an Engagement Simulation Systems Activity. An ESS PT or training activity may be halted at any time for safety, emergency, real-time security events, or administrative reasons.
 - (1) Exercise Freeze. An Exercise Freeze is a command that is used to halt an exercise when it is necessary to correct safety-related problems or respond to an emergency.
 - (a) Any person observing a safety problem must announce, “Exercise Freeze.”
 - (b) Controllers/Evaluators must relay the Exercise Freeze announcement throughout the PT area.
 - (c) Every participant must immediately freeze in place (i.e., stop at their locations and cease fire, movement, communication, and any other action) until the command “Resume Exercise” is given by the Exercise Director or Senior Controller at the direction of the Exercise Director.
 - (d) In the case of a real-time security event, the exercise cannot resume until all Shadow Force members return to their staging areas and the Shadow Force Controller confirms with the Exercise Director that all Shadow Force members are properly staged.
 - (2) Administrative Hold. The command “Administrative Hold” is used to halt an ESS PT when it is necessary to correct exercise problems of an administrative or procedural nature. The use of the command may be planned when it is necessary to put a temporary hold on activities to set the stage for continuation of the PT (e.g., change scenarios, operations shift change activities, etc.).

- (a) The effect of an “Administrative Hold” can be limited to a specific location(s) or activity in a PT or the entire exercise.
- (b) The command “Administrative Hold” must not be called to correct safety problems or respond to emergencies.
- (c) Only a controller can administratively halt exercise activities. The controller will announce the hold in the affected area and all participant activity in that area will immediately halt until the controller gives the command “Resume Exercise.”

c. Participants.

(1) Pre-Exercise Activities.

- (a) All pre-exercise actions must be conducted in accordance with normal operating procedures. Participants must be closely monitored to ensure they do not use artificially generated factors to affect the outcome of the PT.
- (b) Participants must be familiar with the operation of issued ESS equipment.
- (c) Participants who will be using or handling pyrotechnics, diversionary devices, hazardous materials, or electrical or mechanical equipment must receive training in their proper use, in accordance with current applicable requirements.
- (d) Before being assigned to act as hostage(s)/role players, individuals must be asked if they are willing and capable of dealing with the isolation and demands of a hostage/barricade situation.
- (e) Participating non-DOE law enforcement and other emergency personnel must be instructed how to react in accordance with PT plans and safety and health requirements.
- (f) All players and participants must be physically capable of participating without undue risk of injury to themselves or others.

(2) Safety.

- (a) No attempt will be made to disarm an adversary by forcibly taking an ESS weapon.
- (b) All ascents to, or descents from, elevated positions must be by ladder, stairs, or other approved methods.

- (c) No person acting in the role of a hostage may be abused.
 - (d) Event Controllers must ensure all occupants of the facility are moved into a safe area during assault phases, and are provided with appropriate PPE and safety equipment.
- (3) Injuries.
- (a) All injuries must be reported immediately to the nearest controller. Anyone observing an injured or ill participant must immediately advise the nearest controller.
 - (b) The command “Exercise Freeze” must be used in communications in the event a hostage role player or other participant becomes injured or ill. If a problem arises during hostage scenario events it must be brought to the attention of a controller immediately.
- (4) Damages. Any damage to vehicles and equipment must be reported to a controller no later than the termination of the PT.
- (5) Elimination.
- (a) Once eliminated under the ROE and/or per scenario-specific requirements, a participant must immediately cease fire, movement, communication, and all other actions. Location permitting, eliminated participants must be prone or seated, and weapons grounded to ensure they do not impact scenario/exercise actions. The responsible controller may remove an eliminated participant from the area for safety and operational reasons. Eliminated participants must remain in place until they are released by a controller.
 - (b) Participants occupying vehicles must be instructed on the provisions for vehicle and vehicle occupant casualties, including the number of allowed survivors based on the type of weapon hit(s) received.
 - (c) No physical contact is allowed with eliminated participants except to search and secure (apply restraints), if applicable to the scenario. An eliminated OPFOR or PF participant may be approached to obtain radios or other equipment. ESS firearms and ammunition may be seized and utilized by other participants only when a controller is present to ensure that the seized ESS firearms and ammunition are used safely. The controller must ensure that the seized ESS weapon is returned to the participant to whom it is assigned for accountability purposes.

- (d) Persons deliberately attempting to circumvent the ROE or gain an unfair advantage by using any unrealistic tactic or action (e.g., covering MILES sensors, hiding behind false cover, removing headbands, etc.) will be immediately eliminated by a controller.

d. Vehicles.

(1) Safety.

- (a) All vehicles not involved in PT play (air, land, or water craft) that will be operated in the PT area must be conspicuously identified and the identification methods must be included in participant briefings. Vehicles that will be used in the PT must be identified clearly as exercise vehicles. All participants are restricted from using vehicles other than those outfitted with ESS equipment and/or designated for PT use.
- (b) All vehicles must be operated safely. Drivers must observe all site requirements and applicable laws relating to vehicle operation. The wearing of safety belts is mandatory for all vehicle occupants. No vehicle will be operated off roadways unless necessary for scenario action and there has been prior approval by the responsible controller.
- (c) During scenario play depicting normal site operations, vehicles must be operated at posted site speed limits. During scenario play requiring emergency response, vehicles will be operated at speed limits delineated in approved PT plans and procedures. Vehicles responding to real-world site emergencies and security incidents during Exercise Freeze conditions will be operated at speed limits per approved response plans.
- (d) Except for normal passing, no vehicle may be driven closer to another vehicle than the distance permitted by the two-second rule. Following a normal pass, the passing vehicle must immediately reduce speed to the posted speed limit.
- (e) There will be absolutely no attempt to use a vehicle to crash, block, or endanger another vehicle in any way, unless the PT scenario or training activity specifically involves the use of precision immobilization techniques (PIT), vehicles in use are properly equipped to conduct PIT, and participants are utilizing proper PPE.
- (f) Impassable roadblocks will be indicated by placing yellow engineer tape, orange cones, flags, etc., on or across the roadway, per approved PT plans/procedures.

- (g) Emergency vehicles are not part of the exercise unless equipped with ESS equipment.
 - (2) Elimination. PT plans/procedures must include requirements to determine the elimination of exercise vehicles. Requirements should include the use of MILES vehicle hit indicator harnesses and controller calls.
- e. Explosives and Pyrotechnics.
- (1) Organizations using explosives and pyrotechnics must provide safe operating procedures to the safety controller. These procedures must identify the hazards and required training, assess the risks, and establish the necessary safety requirements for the particular operation.
 - (2) Explosives and pyrotechnics must be employed commensurate with the applicable requirements of DOE O 440.1A, *Worker Protection Management for DOE Federal and Contractor Employees*, and DOE M 440.1-1, *DOE Explosives Safety Manual*.
 - (3) Pyrotechnics and explosives must be used by the OPFOR, Special Response Teams (SRTs), or other personnel only as authorized by the DOE cognizant security authority. Personnel must be trained in the use of deployed explosives and pyrotechnics and in the respective safety requirements. Quantities of, and locations for, explosives and pyrotechnics to be utilized during the PT must conform to approved response plans and be reviewed and approved by the Senior Controller and the Safety Controller prior to use.
 - (4) ESS Pyrotechnics.
 - (a) Electrical explosives in an ESS explosive simulator device are directed upward and slightly to the rear of this device. The safety zone around these devices is 10 feet.
 - (b) Participants firing an ESS LAW/RPG must ensure that the area 30 feet behind and 5 feet to each side of the weapon is clear. Personnel in the exercise area must also be briefed to not approach closer than 30 feet directly behind any participant firing a LAW/RPG. LAWs can be made safe by depressing the safety rod that is on the top rear of the weapon.
 - (c) Vehicle system electrical explosive charges are mounted on the opposite side from the color indicator light. Since these devices are usually mounted on the vehicle roof with the blast directed upward, they normally do not present a hazard. However, there

may be selected special applications where the device is mounted on a vehicle bumper or hood. In these situations, participants must be careful not to position themselves above or within 10 feet of the explosive holder.

CHAPTER IV - OPERATIONS

1. BASIC CONSIDERATIONS.

a. General.

- (1) Specific site policies and procedures covering the safe transportation, handling, use and storage of live ammunition, blank ammunition, chemical munitions and pyrotechnic devices used in firearms operations must be developed.
- (2) Each Department of Energy (DOE) cognizant security authority must require that analyses be performed to determine what ammunition and firearms can be used safely.
- (3) All personnel covered by this Manual must be required to comply with the personal protective equipment (PPE) and safety rules in effect at each workplace.
- (4) Firearms must be in serviceable condition at all times. Semiautomatic pistols must be carried with a round in the chamber. Other duty and auxiliary firearms configurations (loaded or unloaded) must be as specified by the DOE cognizant security authority.

b. Post and Patrol Activities.

- (1) Loading or clearing firearms must take place only in an approved area or when the barrel of the firearm is in or pointing toward a bullet containment device. An approved procedure for loading and clearing firearms under field conditions when no bullet containment device is available must be developed.
- (2) Routine loading and clearing of all firearms must be witnessed by a supervisor or a designated DOE National Training Center (NTC)-certified firearms instructor.
- (3) If the presence of alcohol or drugs is detected on a person, the individual must be denied the issuance of a firearm and/or disarmed and removed from duty.
- (4) All duty firearms must be carried in the manner approved by the DOE cognizant security authority. Unless otherwise stated, from check-in to check-out, a handgun must be holstered; and a rifle, shotgun, or submachine gun must be carried on an appropriate sling with the muzzle pointed up or down, except where the firearm is designed to be carried in a different manner or operational conditions dictate otherwise. Firearms must not be carried with a finger on the trigger or inside the trigger guard.

- (5) When firearms are transported in vehicles, watercraft, or aircraft and are not carried by an individual, they must be mounted in an appropriate rack or container with the firing chamber empty. During normal operations, long guns (e.g., rifles, shotguns, submachine guns) must not be carried with a round in the firing chamber. Long guns must never be placed in post or vehicle racks or carriers with a round in the firing chamber.
- c. Firearms, Ammunition, Pyrotechnics, and Explosives. Firearms, ammunition, pyrotechnics, and explosives must be available in sufficient quantity to permit protective forces (PFs) to act according to response plans. Firearms, ammunition, pyrotechnics, and explosives must be of a type suitable for the intended use, deployed in a manner commensurate with that use, and controlled in a manner consistent with DOE M 440.1-1, *DOE Explosives Safety Manual*. The firearms, ammunition, pyrotechnics, and explosives used must pose the minimum danger to personnel, and facilities commensurate with success of the PF mission. Firearms, ammunition, pyrotechnics, and explosives must be carried and transported safely and securely. Any discharge of a firearm for other than training purposes must be reported. [See DOE N 471.3, *Reporting Incidents of Security Concern*.]
- d. Sights. All unassigned firearms with adjustable sights must have the sights set in a manner to ensure that PF personnel who may use these firearms know the point of impact and can make point-of-aim adjustments quickly and consistently to permit accurate initial fire. Verification of sight adjustment and bullet impact must be made semiannually (at least every 6 months). This must be accomplished by live fire or through the use of a sighting device that simulates bullet impact. Such sighting devices must be approved by the DOE cognizant security authority.
- e. Spare Firearms. There must be a minimum of 10 percent spare firearms of each type of firearm deployed on site (e.g., duty, Engagement Simulation Systems [ESS], training) to provide for the replacement of malfunctioning firearms and to provide firearms to PF personnel responding according to approved site response and contingency plans.
- f. Protective Force Firearms, Ammunition, and Explosives. Firearms, ammunition, and explosives used by PFs must be based on consideration of the Design Basis Threat (DBT), assigned missions, the Site Security Plan/Site Safeguards and Security Plan (SSP/SSSP) and Vulnerability Assessment (VA), and approved by the DOE cognizant security authority. Use of explosives is addressed in DOE O 440.1A, *Worker Protection Management for DOE Federal and Contractor Employees*, and DOE M 440.1-1, *DOE Explosives Safety Manual*. The types of diversionary pyrotechnics used must be on the list maintained by the Office of Security.
- g. Firearms Trigger Safety Locks.

- (1) Trigger safety locks must be issued to any Federal or contractor employees issued firearms who, for any reason, are permitted to take the firearms offsite and may not maintain continuous immediate possession or direct control of the firearms.
 - (2) A trigger safety lock must be installed and locked any time a firearm is taken offsite and leaves the immediate physical possession or immediate control of the individual to whom the firearm has been issued.
 - (3) Any firearm shipped or transported offsite (e.g., Federal Express, in baggage that is to be checked, etc.) must be locked with a trigger safety lock or placed in a locked container. Firearms shipped by bulk must be secured in a locked or banded container. Firearms that cannot fire live ammunition (i.e., ESS, including dedicated blank-fire, multiple integrated laser engagement system (MILES), and dye-marking cartridge [DMC] firearms) are not required to be individually locked with a trigger safety but must be secured in a locked or banded container.
- h. Firearms Modifications. Modifications to firearms must be conducted by a DOE-certified armorer.
- (1) Approved Modifications. Written approval must be requested and received from the DOE cognizant security authority before a DOE firearm (live-fire or ESS firearm) may be modified. Modifications on the DOE Firearms Modification List (FML), as approved by the Office of Security, may be conducted after the DOE cognizant security authority has granted approval. Appendix B-6 contains the current approved Firearms Modification List.
 - (2) Non-Approved Modifications. Requests for modifications not on the FML must be submitted in writing to the Office of Security with the following:
 - (a) a general description of the modification;
 - (b) the purpose/objective of the modification;
 - (c) a detailed, step-by-step description of the process to accomplish the modification, with mechanical and/or illustrative drawings;
 - (d) a description of the post-modification testing to be conducted; and
 - (e) the number of firearms to be modified. The request will be forwarded to the DOE NTC for review by its armorer section. The DOE NTC will provide written comments and/or a recommendation to the Office of Security and the DOE cognizant security authority.

Upon review and concurrence on the DOE NTC's recommendation, the modification may be approved by the DOE cognizant security authority. Upon such approval, the modification must be submitted to the Office of Security for inclusion on the FML.

(3) ESS Firearms Modifications.

- (a) Dedicated ESS firearms must not be reactivated for live-fire usage without the approval of the DOE cognizant security authority.
- (b) If a factory "drop-in" kit is used to modify a firearm to use DMC, a DOE-certified armorer specifically trained in the installation of such a kit must conduct the modification.
- (c) Proposed modifications of ESS firearms to change their function in any way or to enhance their safety must be submitted to the Office of Security for approval through the cognizant security authority. The provisions of paragraph 1.h.(2), above, apply.
 - 1 Weapons with modifications that have not been approved in writing by the Office of Security will not be issued for use.
 - 2 The current list of approved ESS firearms and modifications is provided in Appendix B-6, "Firearms Modification List."
- (d) ESS firearm modifications include any changes made to a firearm system, magazine, clip, feeding assembly, or blank-fire adaptor (BFA).

2. STANDARDIZATION OF FIREARMS. Standardization of firearms enhances the efficiency of standard and centralized training and enables inter-site assistance in the event of a security incident or other situation requiring supplemental or replacement forces.

a. The following weapons constitute the DOE standardized firearm systems:

- (1) Handgun: Glock Inc., Model 22, 40 caliber.
- (2) Duty Rifle: M-16 family of rifles, .223 caliber.
- (3) Shotgun: Remington, Model 870, 12 gauge.
- (4) Precision Rifle: Remington, Model 700 Action, .308 caliber.
- (5) 40mm Grenade Launcher: Military Model 203.
- (6) Belt-Fed Machine Guns: Fabrique Nationale Models 240 and 249.

- b. Due to the multiple agencies and contracts involved in a centralized procurement, where possible, the Office of Security will coordinate the acquisition of standardized weapons. Existing procurement contracts and Federal interagency support agreements will be used. Otherwise, the cognizant DOE authority for security is responsible for coordinating the procurement of site weapons.
 - (1) Replacement of current inventories is intended to occur as firearms become due for replacement.
 - (2) The standard list provides needed firearms capability for the majority of Departmental missions within site-specific conditions; however, operational, safety, or other requirements may dictate the need for an alternative firearm.
 - (3) Deviations from, or additions to, this list must be approved by the Office of Security, or the Associate Administrator for Defense Nuclear Security, as applicable. If unable to obtain any needed firearms through interagency agreements pursuant to the Economy Act, DOE will comply with the requirements of the Federal Acquisition Regulation (FAR), Subpart 6.3.

3. STORAGE OF FIREARMS, AMMUNITION, PYROTECHNICS, AND EXPLOSIVES.

Firearms, ammunition, pyrotechnics, and explosives must be stored safely and under the direct control of PF personnel or controlled within established security areas. Alternatively, they may be stored in a vault-type room if an intrusion detection system is installed to detect penetration and the alarm response capability is such that unauthorized removal is unlikely.

- a. Bulk Storage. Bulk quantities of ammunition, pyrotechnics, or explosives, which are not used routinely and/or are stored for long periods of time, must be stored in facilities that meet design criteria specified in DOE M 440.1-1, *DOE Explosives Safety Manual*. These storage facilities must be located within a designated security area.
- b. Storage Containers. Firearms, ammunition, pyrotechnics, and explosives must be stored in General Services Administration (GSA)-approved firearms storage containers that are bolted or otherwise secured to the structure or under alarm coverage. Where the weight of the storage container would deter removal of the container, the requirement to bolt or secure is not applicable. Firearms not in such containers or under alarm coverage must be locked in racks, chained, or cabled to prevent unauthorized removal.
- c. Firearms Storage.
 - (1) Firearms not identified for duty or contingency use and having a valid justification for retention must be stored in a manner that will prevent deterioration due to environmental conditions.

- (2) Off-site storage of firearms must be specified and authorized by DOE cognizant security authority.
 - (3) Dedicated ESS firearms must be stored separately from live firearms. Separate storage may be accomplished by placing live firearms and ESS firearms in separate, secured storage containers in the same location or by storing in separate locations.
 - d. Storage of Ammunition. Live ammunition and ESS-related ammunition (i.e., blank fire, DMC, dummy rounds, etc.) must be stored separately. Separate storage may be accomplished by placing live and ESS ammunition in separate, secured storage containers in the same location or by storing in separate locations.
 - e. On-Post Firearms, Ammunition, Pyrotechnics, and Explosives. Auxiliary firearms, ammunition, pyrotechnics, and explosives that are maintained at posts for use during response to security incidents must be under the direct control of, and readily accessible to, on-duty PF personnel. Firearms, ammunition, pyrotechnics, and explosives must be secured in such a manner that they are inaccessible to and cannot be removed by persons passing through, by, or in the post.
 - f. Pre-positioned Pyrotechnics and Explosives. In support of PF response plans and strategies, limited quantities of pyrotechnics and explosives may be pre-positioned at approved locations (e.g., PF posts, response vehicles, etc.). Pre-positioned pyrotechnics and explosives must be kept in their original containers unless operational and response requirements dictate otherwise. These pyrotechnics and explosives must be readily accessible to authorized PF personnel and secured in such a manner that they are inaccessible to and cannot be removed by persons passing through, by, or in the post. PF personnel charged with the responsibility of employing and overseeing the storage of pyrotechnics and explosives must be trained in their use and storage. [See DOE M 440.1-1, *DOE Explosives Safety Manual.*]
4. FIREARMS AND AMMUNITION MAINTENANCE/INSPECTION. Firearms available for duty or contingency operations must be inspected by a DOE-certified armorer prior to initial use and at least every 6 months thereafter to determine serviceability. Firearms must be cleaned and maintained in a manner that meets or exceeds the manufacturer's recommendations.
 - a. DOE Armorer Requirements. All sites, including the DOE NTC, must have (on site, under contract offsite, or in association with another DOE site) an armorer with the knowledge, capability, and responsibility for inspecting, maintaining, and repairing all firearms available for use. The armorer and all other personnel are prohibited from modifying the basic design of a firearm or any of the firearm's operating or safety components without written approval from the DOE cognizant security authority or, as applicable, Office of Security.

- (1) Certification. Prior to initial assignment to duty as a DOE Armorer:
 - (a) The DOE Armorer must successfully complete the DOE Basic Armorer Certification Course, as approved by the Office of Security.
 - (b) The DOE Armorer must successfully complete the DOE Advanced Armorer Certification Course, as approved by the Office of Security, for those advanced firearms available for use onsite.
 - (c) The DOE Armorer should successfully complete a manufacturer's armorer course for the specific weapons systems employed for site use, where available.
 - (d) The DOE Armorer must successfully complete a manufacturer's or military armorer course for the specific weapons system(s) employed for site use when such course(s) is not delivered by the DOE NTC.
 - (e) In addition, armorers must demonstrate proficiency in:
 - 1 conducting firearms safety inspections;
 - 2 performing minor repairs of basic firearms;
 - 3 assembling/disassembling the firearms used at the various sites;
 - 4 rendering firearms safe, including confiscated firearms;
 - 5 knowing the minimum and maximum tolerances associated with safe operation of all firearms in inventory and available for use at each respective site; and
 - 6 identifying unapproved modifications to firearms.
- (2) Recertification. The following DOE Armorer recertification requirements must be met.
 - (a) The DOE NTC must evaluate each armorer for competency and recertification at least once every 24 months. NOTE: Verification of compliance with this requirement must consist of observation of armorer performance during actual duties and/or by performance testing activities, and inspection of required armory firearms records and other applicable documentation.

- (b) The evaluation must consist of verification of armorer knowledge of all firearms in inventory and available for use on the site, in the following areas:
- 1 conducting firearms inspections;
 - 2 performing required firearms repairs;
 - 3 using written procedures and technical specifications;
 - 4 updating of firearms maintenance records;
 - 5 maintaining firearms in a serviceably clean and good condition, free from unapproved modifications;
 - 6 using proper tools necessary to perform required maintenance, repairs, and inspection duties;
 - 7 using a proper tag-out system for firearms in need of repair, and proper segregation of tagged-out firearms;
 - 8 adhering to separate storage requirements for live-firearms and ESS firearms; and
 - 9 having armorer currency in factory requirements for the specific weapons systems available for use onsite.
- (3) Refresher Training. Each armorer must successfully complete formal refresher training, where applicable, to maintain the minimum level of competency required for the successful performance of tasks associated with site-specific armorer responsibilities. The type and intensity of training must be based on emerging and changing maintenance and repair technologies associated with site-specific employed firearms and developed, when applicable, by the DOE NTC in conjunction with firearms factory guidelines. Refresher training may be conducted during the DOE NTC armorer recertification and/or factory armorer recertification process.
- (4) An armorer certified by the DOE NTC is the only individual authorized to perform the following firearms activities.
- (a) Semiannual (at least every 6 months) inspections.
 - (b) Any firearms repair.
 - (c) Any firearms modification or component alteration.
 - (d) Any disassembly beyond the manufacturer's recommended "field strip" for cleaning purposes.

b. Inspection Criteria.

- (1) All firearms must be inspected semiannually (at least every 6 months) by a DOE certified armorer. Inspections must consist of a detailed disassembly of the firearm's components. The armorer must inspect the components for excessive wear, cracks, or breaks. In addition, the armorer must ensure the firearm meets all manufacturing tolerances relevant to the maintenance of that firearm, guaranteeing safe and reliable firearm function. A bench function check will not constitute an inspection.
- (2) The armorer must inspect and conduct test firings of a firearm following any unusual operation of, occurrence with, or functional repairs made to, that firearm. Functional repairs are those that affect the safe operation or reliability of the firearm. Any firearm that has experienced an unusual operation must be tagged "out-of-service" and segregated from operational firearms until certified by the armorers as safe to operate.
- (3) The armorer must maintain accurate individual records for all firearms including manufacturer, model type or number, serial number, inspection dates, and the nature and date of any repair or modification. Records of any unusual occurrence and subsequent inspection/test firing must be maintained in accordance with prescribed authorized schedules.
- (4) For safe operations, the minimum trigger pull for firearms must not be less than the requirement specified by the manufacturer.
- (5) Stored firearms must be inspected prior to return to active inventory.
- (6) Duty ammunition must be exchanged for fresh ammunition annually (at least every 12 months). Duty ammunition is that which is loaded in a weapon or magazine. Specialty rounds such as 40 mm and armor piercing (AP) are not covered by this requirement.

c. Test Firing.

- (1) The armorer must coordinate test firing of any firearm following unusual operations or occurrences.
- (2) All firearms must be test-fired following the repair or replacement of components listed in the DOE *Armorers' Technical Guide* that involve the functioning of the weapon. The need for test firing of firearms following other repairs must be according to local site standard operating procedures (SOPs) or left to the discretion of the armorer.

- d. ESS Weapons.
 - (1) Armorers working on ESS weapon systems must familiarize themselves with all DOE documentation that deals with deploying the weapons. They must also know their site's specific rules pertaining to ESS weapon use.
 - (2) Armorers who work on ESS firearm systems must learn the various modifications on these firearms through DOE NTC on-the-job training, training provided through the Armorers Quality Panel, or both.
 - (3) Only DOE-certified armorers may install DMC dye-marking conversion kits.
 - (a) Dye-marking conversion kits must be installed and maintained according to the manufacturer's instructions.
 - (b) Prior to use, the armorer must ensure that the conversion kit is properly installed, the bore is free from fouling, and the components are in good working order.
- 5. PYROTECHNICS AND EXPLOSIVES INSPECTION. Pyrotechnics, explosives, and any associated equipment available for use during routine or contingency operations must be inspected by qualified PF personnel prior to each use and at least every 3 months to ensure they are properly stored, stable, and within current shelf-life and use requirements. Pyrotechnic and explosives inspections are further addressed in DOE M 440.1-1, *DOE Explosives Safety Manual*.
- 6. INVENTORY OF FIREARMS, AMMUNITION, PYROTECHNICS, AND EXPLOSIVES. Firearms, ammunition, pyrotechnics, and explosives inventories must be maintained to allow efficient and effective arming and training of PF personnel.
 - a. Live-Firearms Inventory. Operational firearms inventories should be limited to the number of armed personnel issued that type of firearm and/or the number required for mounting in posts and vehicles, plus 10 percent to accommodate maintenance and contingency requirements. Due to the remote location of some training facilities, some site inventories may require live-fire weapons for training and qualification. Therefore, additional inventories of firearms may be maintained to support live firearms training activities. All issued firearms must be inventoried by a number count at the beginning of each shift. All firearms in storage must be inventoried by a number count weekly. An inventory of all firearms, listing the type of firearm, the manufacturer, and its serial number must be conducted monthly. Firearms that are not identified for duty or contingency use may be inventoried by container in the event a complete container inventory has been conducted previously and the container is secured by a serial-numbered security seal.

- b. Dedicated ESS Firearms Inventory. Departmental safety instructions require that firearms used for ESS activities be permanently modified and not routinely transferred between live and non-lethal uses. Additional inventories of dedicated firearms may be maintained to support ESS training activities. Dedicated ESS firearms must be inventoried by a number count prior to and after each use. An inventory of dedicated ESS firearms, listing the type of firearm, the manufacturer, and its serial number must be conducted monthly. ESS firearms that are not in continual use may be inventoried by container in the event a complete container inventory has been conducted previously and the container is secured by a serial-numbered security seal.
- c. Ammunition, Pyrotechnics, and Explosives Inventory. Ammunition must be inventoried annually (at least every 12 months). Pyrotechnics and explosives must be inventoried monthly. Pre-positioned pyrotechnics and explosives must be inventoried by a number count at the beginning of each shift. Pyrotechnics and explosives stored in bulk, which are not identified for duty or contingency use, may be inventoried by container if a complete container inventory has been conducted previously and the container is secured by a serial-numbered security seal.
- d. Inventory Shortages. After conducting a preliminary inquiry involving an indication of an unaccounted for, missing, or stolen firearm, a significant quantity of ammunition (in excess of 100 rounds), or any amount of pyrotechnics, explosives; 40 mm, .50 caliber AP, or any other specialty rounds; PF management must immediately report such a shortage to the DOE cognizant security authority, who must report to the Office of Security within 24 hours. The DOE cognizant security authority must then prepare and transmit an Incident of Security Concern (see DOE M 470.4-1).

CHAPTER V - OPERATIONAL ASSURANCE

1. APPRAISALS/SELF-ASSESSMENTS.

- a. Formal appraisals or self-assessments of the safety and health aspects of the safeguards and security (S&S) program must include firearms safety and must be performed by line management annually (at least every 12 months).
[DOE O 440.1A, *Worker Protection Management for DOE Federal and Contractor Employees*].
- b. Contractors must conduct and document formal appraisals and self-assessments (i.e., annual program reviews and worksite appraisals and periodic surveillance).
- c. Department of Energy (DOE) line management must conduct and document formal self-assessments to include annual program reviews of each contractor and appraisals of selected worksites.
- d. Firearms safety assessments must be conducted by safety personnel or by a joint safety and protective force (PF) evaluation team.
- e. Firearms safety assessments must cover procedures, responsibilities, and duty assignments within the firearms safety program to ensure that overall objectives and performance are being met.
- f. Firearms safety assessments must include reviews of:
 - (1) records of unauthorized firearms discharges, investigations of such discharges, and the application of lessons learned;
 - (2) armorer's records of firearms inspections, malfunctions, and repairs;
 - (3) firearms documentation maintained by Federal or contractor environment, safety and health personnel to ensure that management decisions and actions to correct deficiencies have been completed and documented on time;
 - (4) PF weapons safety performance data, as compared with similar operations and programs in other agencies, to determine whether there are lessons to be learned or deficiencies that require corrective action;
 - (5) hazardous incidents involving firearms and associated equipment;
 - (6) safety tagout program for defective firearms;
 - (7) results of the airborne lead monitoring programs at firing ranges and of the testing programs for blood lead level changes and hearing loss;

- (8) storage and handling of firearms, ammunition, and cleaning materials in armories;
- (9) high risk activities, such as loading, unloading, and exchanging firearms, to ensure the existence of proper accident prevention controls; and
- (10) firearms training programs.

2. PROTECTIVE FORCES SAFETY COMMITTEE.

a. Composition. Co-chairpersons must be representatives of the Office of Safeguards and Security Policy and the Office of Nuclear and Facility Safety Policy. The following DOE organizations must be afforded the opportunity to provide one permanent DOE safety representative voting member or alternate to the Protective Forces Safety Committee (PFSC).

- (1) Office of Safeguards and Security Policy.
- (2) Office of Nuclear and Facility Safety Policy.
- (3) National Nuclear Security Administration (NNSA), Office of the Associate Administrator for Defense Nuclear Security.
- (4) DOE National Training Center (NTC).
- (5) Office of Environmental Management.
- (6) Office of Science.
- (7) Office of Health Programs.
- (8) DOE Site Offices (including NNSA Service Centers, as applicable).

b. Responsibilities.

- (1) The Office of Security, Safeguards and Security Policy staff, and the Office of Nuclear and Facility Safety Policy, administer and manage the PFSC.
- (2) The Committee reviews, evaluates, and makes recommendations for action on proposed changes to directives, other requirements, and procedures involving the purpose, program, duties, qualifications, training, equipment, and firearms of the DOE PF Program. Meetings will be held semiannually (at least every 6 months) and may be scheduled more or less often depending upon the urgency and importance of program issues.

- (3) Managers of DOE offices and contractors providing PF functions on, at, or for a DOE site must have a protective forces safety committee formally organized and chartered to assist management in providing safe PF activities.

CHAPTER VI - TRANSPORTATION, HANDLING, AND STORAGE OF MUNITIONS

1. APPROVED AMMUNITION.

- a. Office of Security is responsible for developing, updating, and maintaining a list of approved ammunition for the daily use of Departmental and contractor personnel. This list must specify the caliber, bullet type and weight, and manufacturer of the ammunition.
- b. Ammunition used for live-fire training and qualification, Engagement Simulation System (ESS) training and other non-lethal training, must be of the highest quality available. Reloaded, reprocessed, or military surplus ammunition must not be used. Ammunition must not be unboxed and placed in bulk containers.

2. TRANSPORTATION OF MUNITIONS.

- a. Transportation of munitions on public highways must be governed by Department of Transportation (DOT) regulations (49 Code of Federal Regulations [CFR] part 173, Shippers--General Requirements For Shipments and Packaging). For transportation purposes only, munitions must be given DOT hazard class designations.
- b. Transportation of munitions onsite must commensurate with the requirements contained in Chapter II, Section 16, of DOE M 440.1-1, *DOE Explosives Safety Manual*. Munitions not in original DOT containers must be transported in containers specified in, Chapter II, paragraph 17.5 of the above Manual.

3. HANDLING OF MUNITIONS.

- a. Munitions must be protected from abnormal stimuli or environments such as impact, shock, high temperatures, or open flames.
- b. Smoking must be prohibited when handling, transporting, or storing munitions. Matches, lighters, other fire-, flame-, or spark-producing devices must not be taken into a munitions storage area; appropriate signs or markings must be posted at such areas.

4. STORAGE OF MUNITIONS. Applicable requirements for the storage of commonly used PF munitions can be found in DOE M 440.1-1, *DOE Explosives Safety Manual*, and in DOD 6055.9-STD, *DOD Ammunition and Explosives Safety Standards*.

- a. Storage Structures. Refer to DOE M 440.1-1, *DOE Explosives Safety Manual*, for guidance on design of structures for storing munitions.
- b. Hazard Class and Hazard Division. For the purpose of placarding, the United Nations Organization (UNO) or the National Fire Protection Association (NFPA) hazard classification systems must be used.

5. PROTECTIVE FORCE MUNITIONS.

- a. Storage of Small Arms Ammunition. Articles in Hazard Class/Division 1.4 and Storage Compatibility Group S are considered as inert for storage purposes and require only appropriate fire-protection distance separation requirements as long as they are stored only with inert items or other 1.4 S items. This applies only if the Hazard Class/Division 1.4 and Storage Compatibility Group S articles remain in their original packaging containers. When stored with items in a Storage Compatibility Group other than S, normal quantity-distance requirements must be observed (see Chapter II, Section 17 of DOE M 440.1-1, *DOE Explosives Safety Manual*).
- b. Transportation of Munitions in PF Vehicles.
 - (1) PF patrol and response vehicles are authorized to transport the quantity of munitions needed to support approved contingency plans and to execute PF duties.
 - (2) Whenever possible, support munitions required for defense against hostile forces should be pre-positioned in readily-accessible magazines.
 - (3) PF vehicles loaded with a combination of up to 25 pounds net explosive weight of Hazard Class/Division 1.1 and 1.2 munitions are exempt from explosives quantity-distance requirements when executing approved contingency plans or PF duties.
 - (a) Vehicles so loaded must not be used for administrative purposes.
 - (b) Vehicles so loaded must be separated from inhabited facilities and property lines by a minimum of 125 feet when temporarily out of PF service.
 - (c) Vehicles so loaded must be downloaded into properly sited magazines or approved facilities when parked for periods in excess of one PF shift.
 - (d) Operation of explosives-loaded vehicles will be restricted to onsite locations unless involved in a pursuit role.
 - (4) The explosives must be secured within the vehicle to prevent movement and to preclude unauthorized removal.
 - (5) These vehicles must be downloaded into properly sited magazines or approved facilities prior to repair or maintenance.
 - (6) Munitions must not be exposed to temperature conditions within the vehicle that exceed the criteria stated on the Material Safety Data Sheet (MSDS) or manufacturer's recommendation. Appropriate safety

precautions will be taken to ensure munitions are not exposed to extreme temperatures.

- c. Munitions Carried by PF Personnel. PF personnel may be allowed to carry on their person Hazard Class/Division 1.1 and 1.2 munitions issued to them for use in the execution of approved contingency plans without regard to explosives quantity-distance requirements.

APPENDIX B-1 - EXAMPLE FORMAT FOR A PRE-EXERCISE BRIEFING

Briefings must be tailored to specific performance tests (PTs) and to the participants. Specialized briefings may be necessary to ensure selected participants are aware of detailed information and/or requirements pertaining to a specific event or role. Responsible personnel must ensure that participants are provided the necessary briefing(s). This example listing of items to be covered in a pre-exercise briefing is not meant to be all-inclusive for every PT or scenario.

1. Scenario(s) - (Need-to-know basis only)
2. Assignments and Responsibilities
3. Operational Considerations
4. Security
5. Operations Security
6. Shadow Force
7. Communications Requirements, Procedures, and Methods
8. Safety
9. Controllers
10. Participants
11. Engagement Simulation System equipment (firearms and other systems, ammunition, pre- and post-exercise requirements)
12. Vehicles
13. Risk Assessment Reports, Hazards, and Mitigating Controls
14. Actions to be taken in event of real world emergencies and/or the Shadow Force is deployed
15. Questions and Answers

APPENDIX B-2 - SAMPLE OF HAZARDS REVIEW

NOTE: THIS ANALYSIS ONLY ADDRESSES HAZARDS ASSOCIATED WITH FIRING AT STEEL TARGETS. HAZARDS ASSOCIATED WITH USE OF FIREARMS OR A SPECIFIC COURSE OF FIRE MUST ALSO BE ASSESSED.

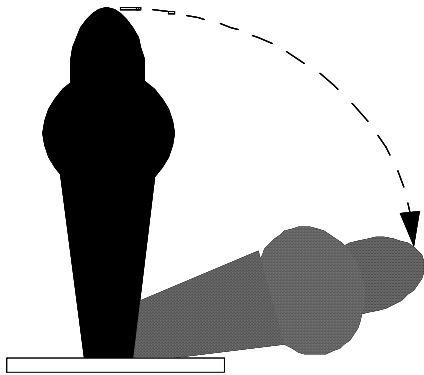
CONDITION/TASK	HAZARD/RISK	RECOMMENDED CONTROL
Firing handgun, shotgun, and rifle caliber firearms at steel targets	Regardless of the precise nature of the hazard, the risk is that participants, observers, or bystanders are struck by bullet fragments causing serious to minor injuries.	<p>The following precautions are required anytime steel targets are used:</p> <p>Participants, observers, or bystanders must wear eye protection with side protection and hats/caps with brims/bills. If shooters are wearing goggles or night vision equipment, additional headgear is not required.</p> <p>Participants, observers, or bystanders must be positioned outside of splatter zone.</p> <p>If possible due to design, target surface angled slightly toward shooter to direct fragments downward.</p>
Firing handgun ammunition	As above	Participants, observers, and bystanders may be not closer to target than 30 feet nor more than 50 feet either side of the gun to target line. Distances for firing frangible ammunition are determined by the manufacturer.
Firing buckshot	As above	Participants, observers, and bystanders may be not closer to target than 30 feet nor more than 15 feet either side of the gun to target line.
Firing rifle ammunition or shotgun slugs	As above	Participants, observers, and bystanders may be not closer to target than 150 feet nor more than 15 feet either side of the gun to target line.

CONDITION/TASK	HAZARD/RISK	RECOMMENDED CONTROL
	<p>Due to target design or construction, bullet dimples, or cracks, or penetrates steel target surface;</p> <p>Subsequent bullets impact surface defect and fragments are directed back up range.</p>	<p>Steel used to make targets must be hard enough and thick enough to prevent dimpling or penetration and sufficiently malleable to prevent cracking.</p> <p>Only weapon systems compatible with the specific target design/construction may be used.</p> <p>Design of steel targets must be approved by the range master.</p>
	<p>Due to target design, bullet strikes structural support (other than target surface) and fragments are directed back up range.</p>	<p>Target design minimizes structural supports within splatter zone;</p> <p>Deflective surfaces minimized or shielded when target surface has reacted (if applicable);</p> <p>Structural supports protected by deflectors that direct bullets and fragments downrange;</p> <p>Otherwise, structural supports are shielded by material capable of absorbing bullet fragments (i.e. sandbags).</p>
	<p>Due to damaged target, bullet strikes dimple, crack, or hole and fragments are directed back up range.</p>	<p>Steel targets must be examined prior to use:</p> <p>Targets with holes or cracks, with dimples deeper than one-sixteenth inch, or with a bow >10° must not be used as targets for handgun caliber weapon systems or shotguns.</p> <p>(They may be used for rifle targets at distances >100 yd).</p>

CONDITION/TASK	HAZARD/RISK	RECOMMENDED CONTROL
	<p>Bullet strikes surface of properly designed, properly built, and properly shielded target;</p> <p>Fragments splatter off target surface, strike structural supports or other surfaces on range.</p>	<p>For splatter off target surface:</p> <p>If possible due to design, target surface angled slightly toward shooter to direct fragments downward.</p> <p>For ricochet off structural support:</p> <p>Design of target minimizes structural supports within splatter zone.</p> <p>Structural supports within splatter zone are shielded/padded (i.e. using sandbags).</p>
Multiple targets - multiple shooters	One or more shooters address multiple steel targets, fragments splatter from target surfaces, strike adjacent targets or deflective surfaces on the range, and are directed back up range.	<p>In multiple steel target scenarios, targets must be placed so that no target is within the splatter zone of any other target in the array, or shielded from the splatter from other targets. Shielding must be angled to deflect splatter downrange.</p> <p>Other deflective surfaces must be eliminated or shielded.</p> <p>Participants, observers, and bystanders must be positioned outside the splatter zone of every target in the array.</p>
Moving shooters	As above	Movement of shooters must be controlled to prevent them from entering the splatter zone(s) of the target(s).

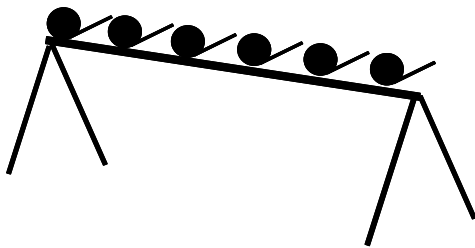
APPENDIX B-3 - EXAMPLES OF STEEL TARGETS

The depicted target types are representative of the styles and types available from steel target manufacturers. They are not to be construed as the only styles authorized for protective force use.



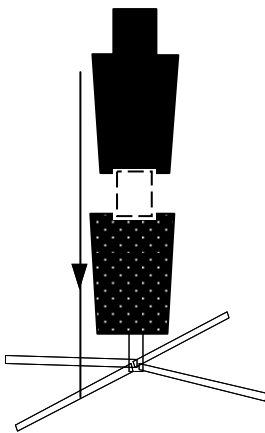
Pepper Poppers

These steel targets are made in different sizes and are used to represent the head and body of a human. Pepper popper targets are adjustable and designed to pivot on a support base and fall rearward when struck by a projectile. (Plans available from the DOE National Training Center [NTC].)



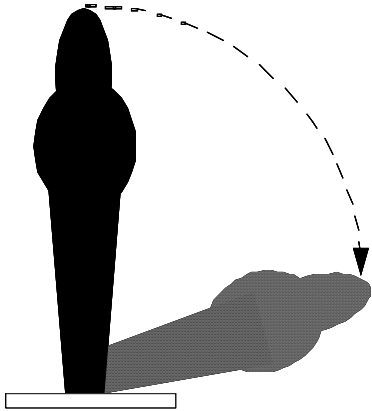
Round Plates

These steel plates vary in size, stand on a base or hang on a rack and are used to simulate head shots.



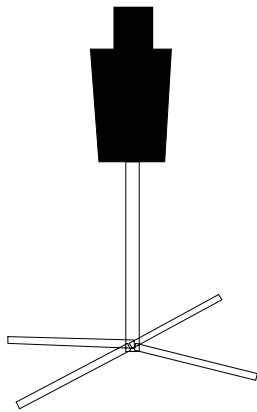
Droppers

These steel targets represent the head and upper torso of the human silhouette. Most dropper targets stand about 5 feet tall and consist of the steel target and a pole for the target to slide down. They are called dropper targets because they drop quickly down the pole when struck by a projectile.



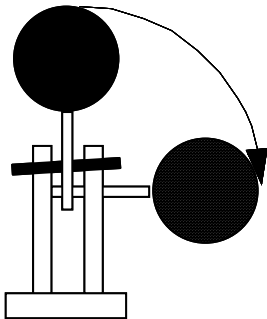
Davis Poppers

These steel targets are similar to the pepper popper steel targets but are larger and squarer. They pivot to the rear on a support base, but are usually used as stationary targets with a forward tilt of approximately 15° to help direct rounds downward into the ground. Because of their size and weight, they are usually permanently located on the range, and also used extensively for shooting with shotguns firing buckshot. (Plans available from the DOE NTC.)



Standing Silhouette

These targets are a steel version of the International Practical Shooting Course cardboard target. These targets sit on a stationary stand making the targets about 5½ feet tall. They are useful for firing at greater distances and are generally painted to enable the hits to be seen.



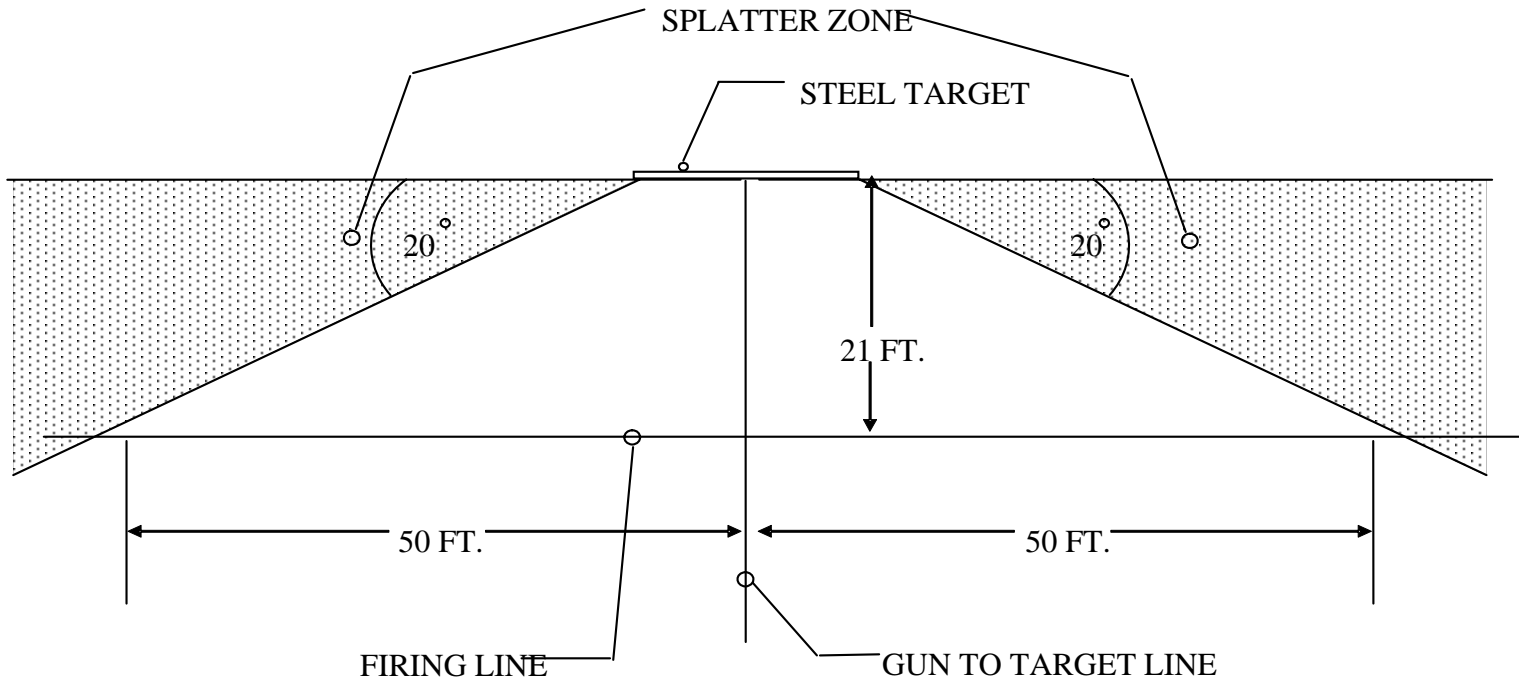
Swinging Targets

These are a swinging version of the round steel plates used for head shots during rifle training. When set at greater distances (100 yard and beyond), the targets can be seen swinging when they are hit. The 4-inch targets normally swing all the way around, and the 10-inch targets move a few inches rearward.

APPENDIX B-4 - STEEL TARGET SPLATTER ZONES

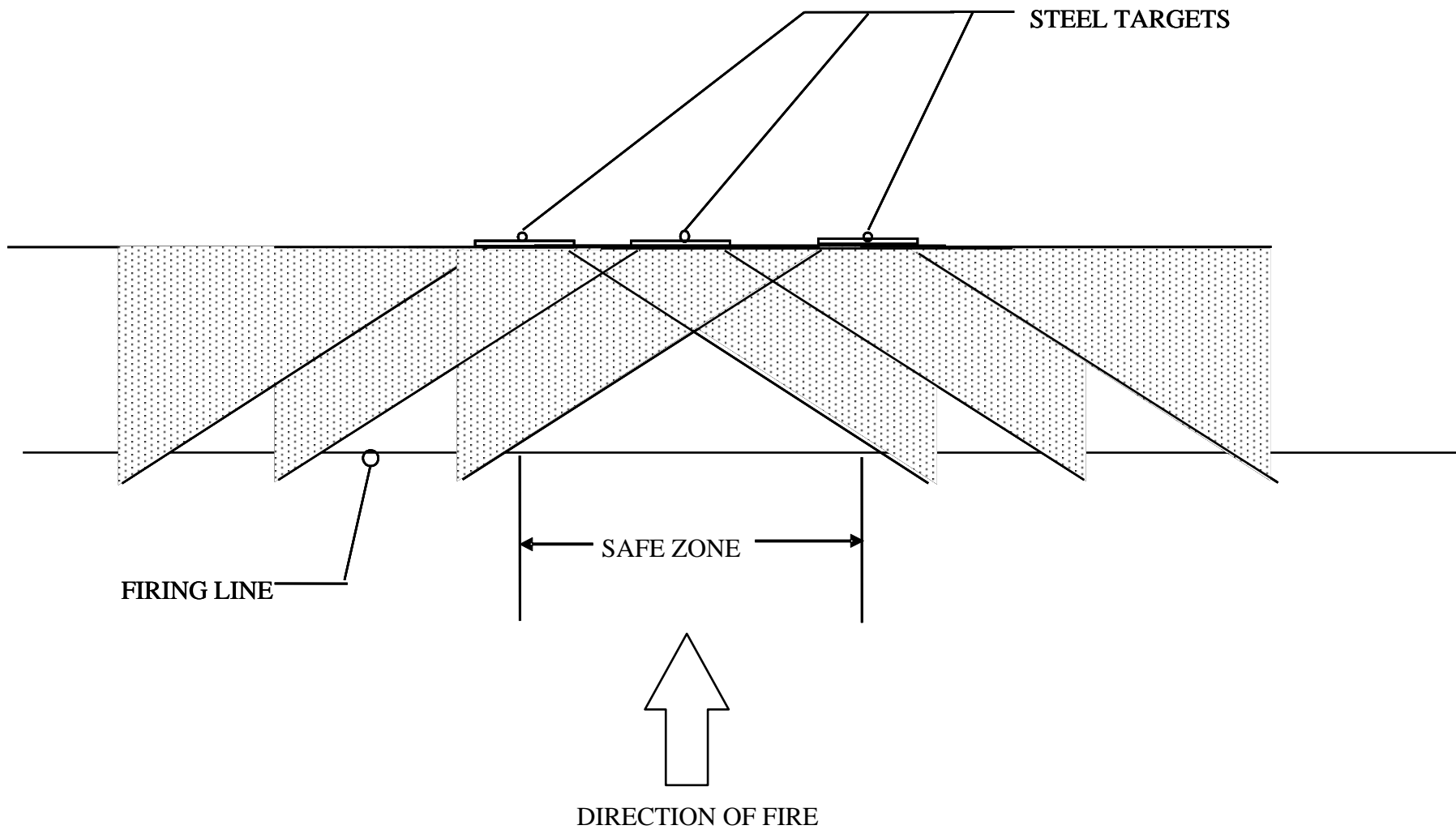
- Figure 1. Splatter Zone for Handgun Ammunition Fired on Steel Target
- Figure 2. Splatter Zone for Handgun Ammunition Fired on Multiple Steel Targets
- Figure 3. Splatter Zone for Handgun Ammunition Fired on Multiple Steel Targets
(Staggered)
- Figure 4. Splatter Zone for Rifle Ammunition and Shotgun Slugs Fired on Steel Target
- Figure 5. Splatter Zone for Buckshot Ammunition Fired on Steel Target

Figure 1. Splatter Zone for Handgun Ammunition Fired on Steel Target



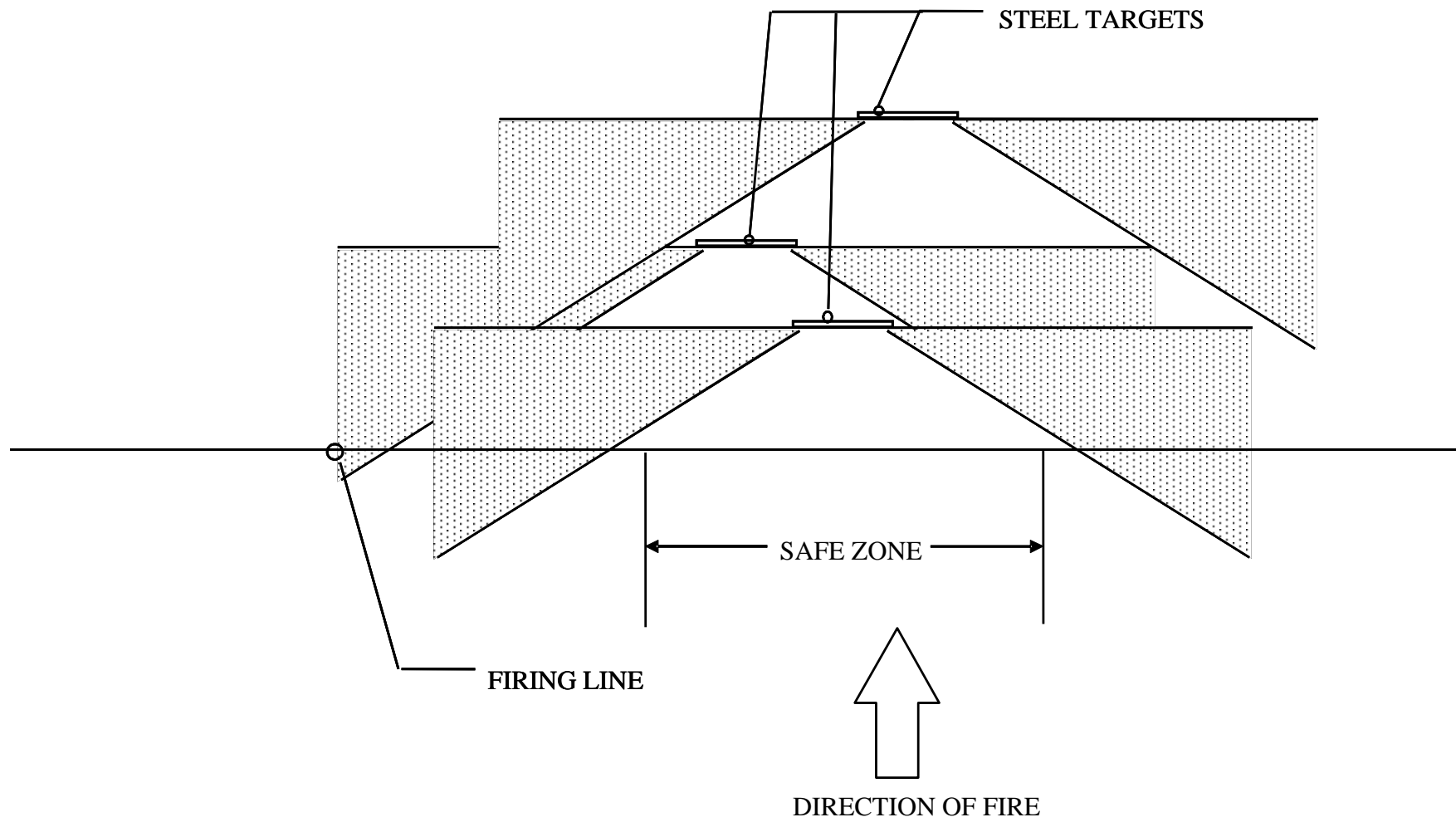
SPLATTER ZONE FOR HANDGUN AMMUNITION FIRED ON STEEL TARGET

Figure 2. Splatter Zone for Handgun Ammunition Fired on Multiple Steel Targets



SPLATTER ZONE FOR HANDGUN AMMUNITION FIRED ON MULTIPLE STEEL TARGETS
Note: The splatter zones of targets at either end of target line determines the width of safe zone

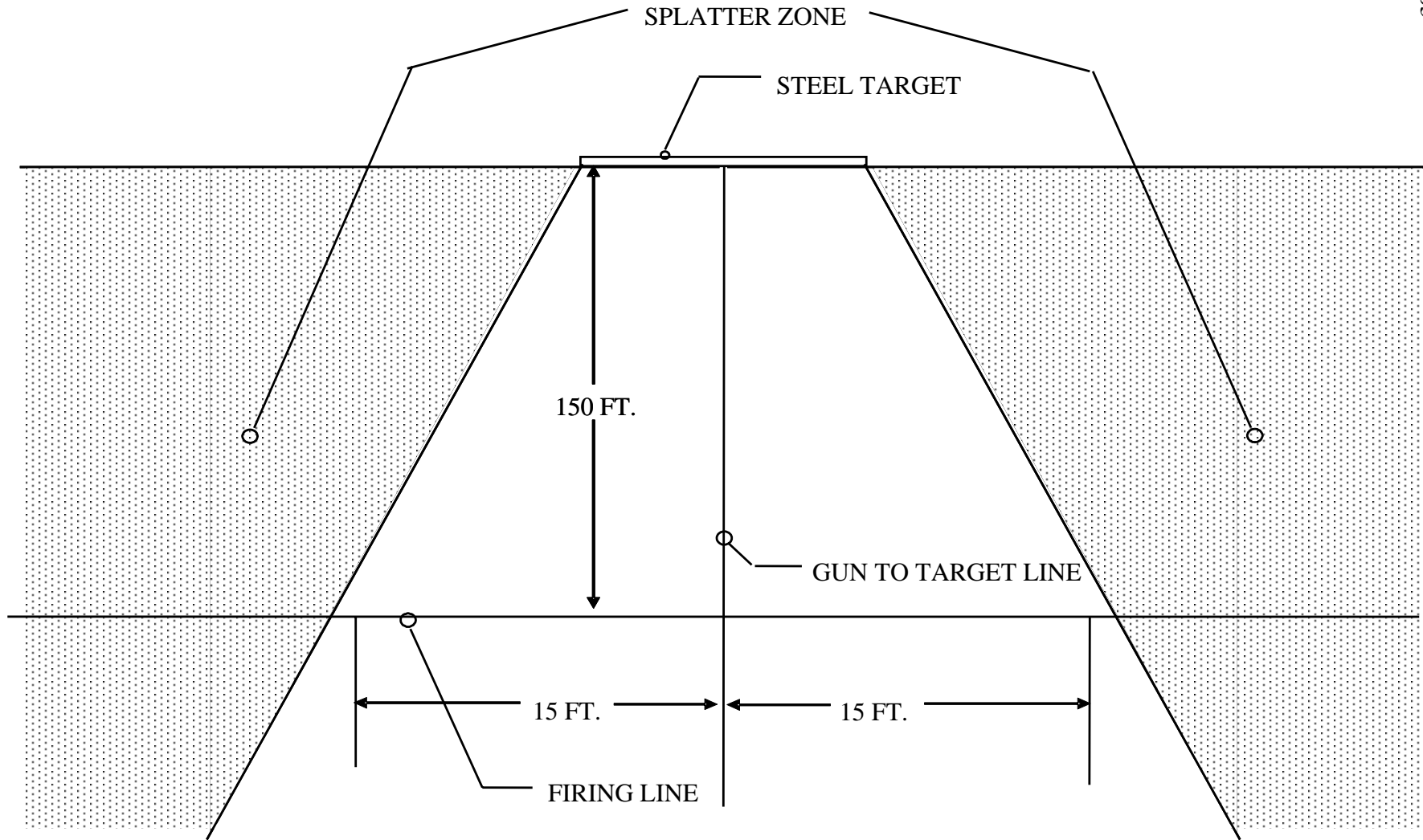
Figure 3. Splatter Zone for Handgun Ammunition Fired on Multiple Steel Targets (Staggered)



SPLATTER ZONE FOR HANDGUN AMMUNITION FIRED ON MULTIPLE STEEL TARGETS

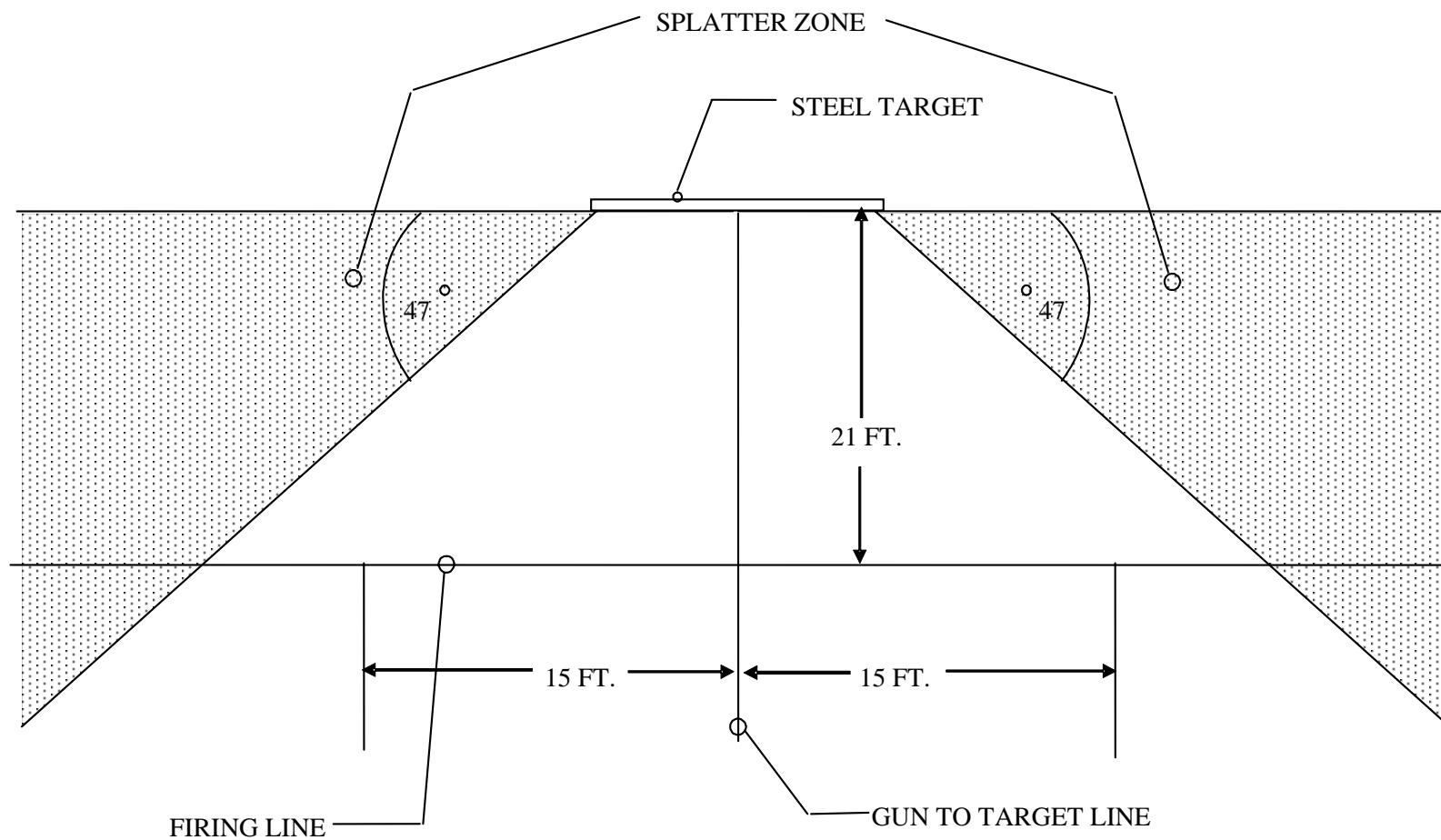
Note: The splatter zone of the target closest to the firing line determines the safe zone

Figure 4. Splatter Zone for Rifle Ammunition and Shotgun Slugs Fired on Steel Target



SPLATTER ZONE FOR RIFLE AMMUNITION AND SHOTGUN SLUGS FIRED ON STEEL TARGET
(angle of splatter off target not determined by testing)

Figure 5. Splatter Zone for Buckshot Ammunition Fired on Steel Target



SPLATTER ZONE FOR BUCKSHOT AMMUNITION FIRED ON STEEL TARGET

APPENDIX B-5
RANGE DESIGN FIGURES

- Figure 1. Surface Danger Zone (SDZ) for Small Arms Firing at Fixed Ground Targets
- Figure 2. SDZ for Small Arms Weapons Firing at Moving Ground Targets
- Figure 3. SDZ for Small Firing at Fixed Ground Targets with Rocky Soil or Targets Causing Ricochet
- Figure 4. SDZ for Firing M79, M203, and M19 40 mm Grenade Launchers
- Figure 5. SDZ with Impact Berm for Small Arms Firing at Fixed Ground Targets
- Figure 6. Open Range with Impact Berm and Side Protection SDZ for Small Arms Firing at Fixed Ground Targets
- Figure 7. SDZ for Partially Baffled Range (Small Arms Firing at Fixed Ground Targets)
- Figure 8. SDZ for Fully Baffled Range (Small Arms Firing at Fixed Ground Targets)
- Figure 9. Ballistic Overhead Canopy
- Figure 10. Outdoor Rifle Range Layout
- Figure 11. Pistol Range Layout
- Figure 12. Ballistic Material
- Figure 13. Ballistic Protection of Target Mechanism
- Figure 14. Impact Berm for Open and Partially Baffled Ranges
- Figure 15. Outdoor Bullet Trap
- Figure 16. Baffle Range Profile
- Figure 17. Baffle System Geometry
- Figure 18. Overhead Baffle Ballistic Designs
- Figure 19. Parallel Ranges
- Figure 20. National Training Center Bullet Trap

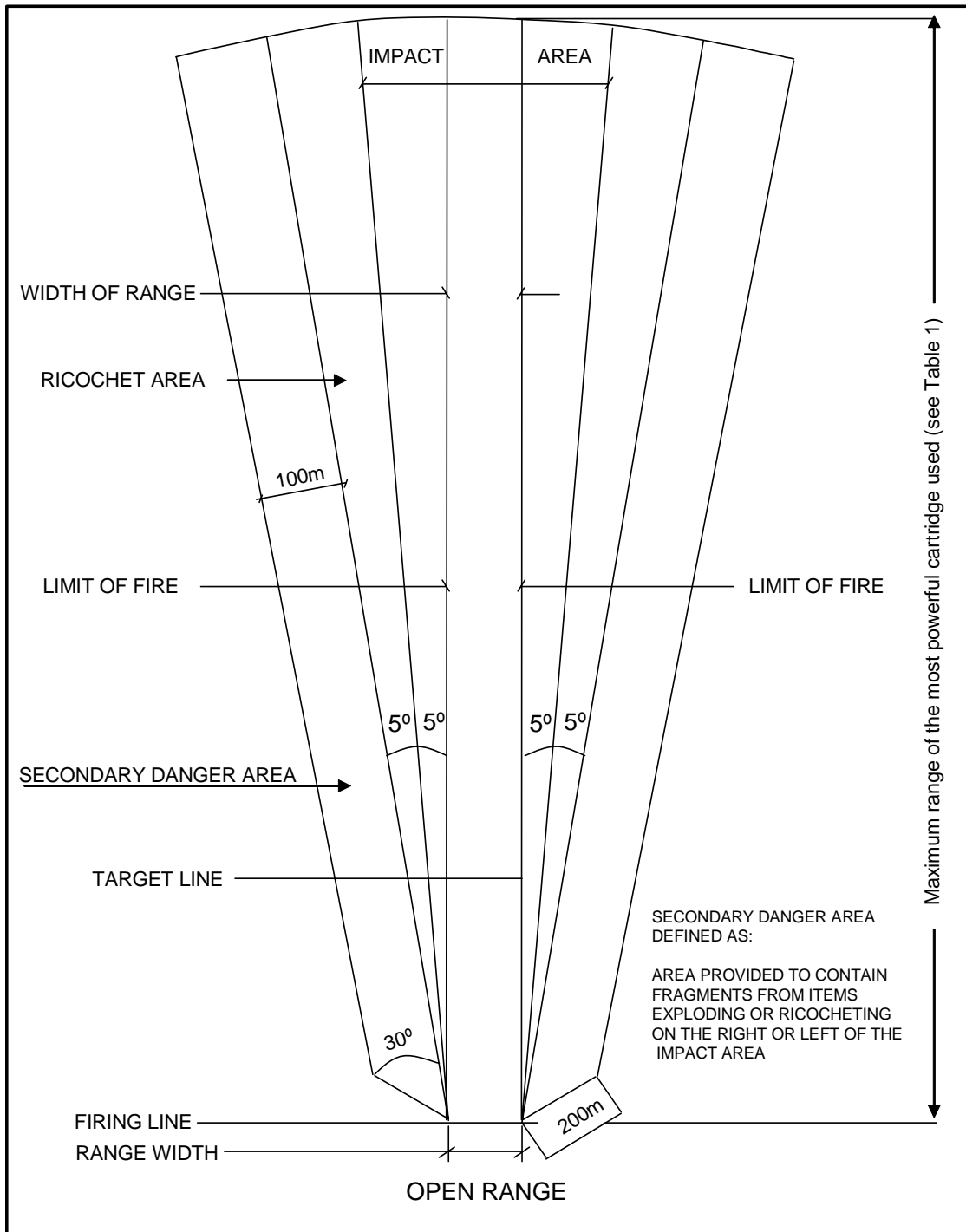


Figure 1
Surface Danger Zone for Small Arms
Firing at Fixed Ground Targets

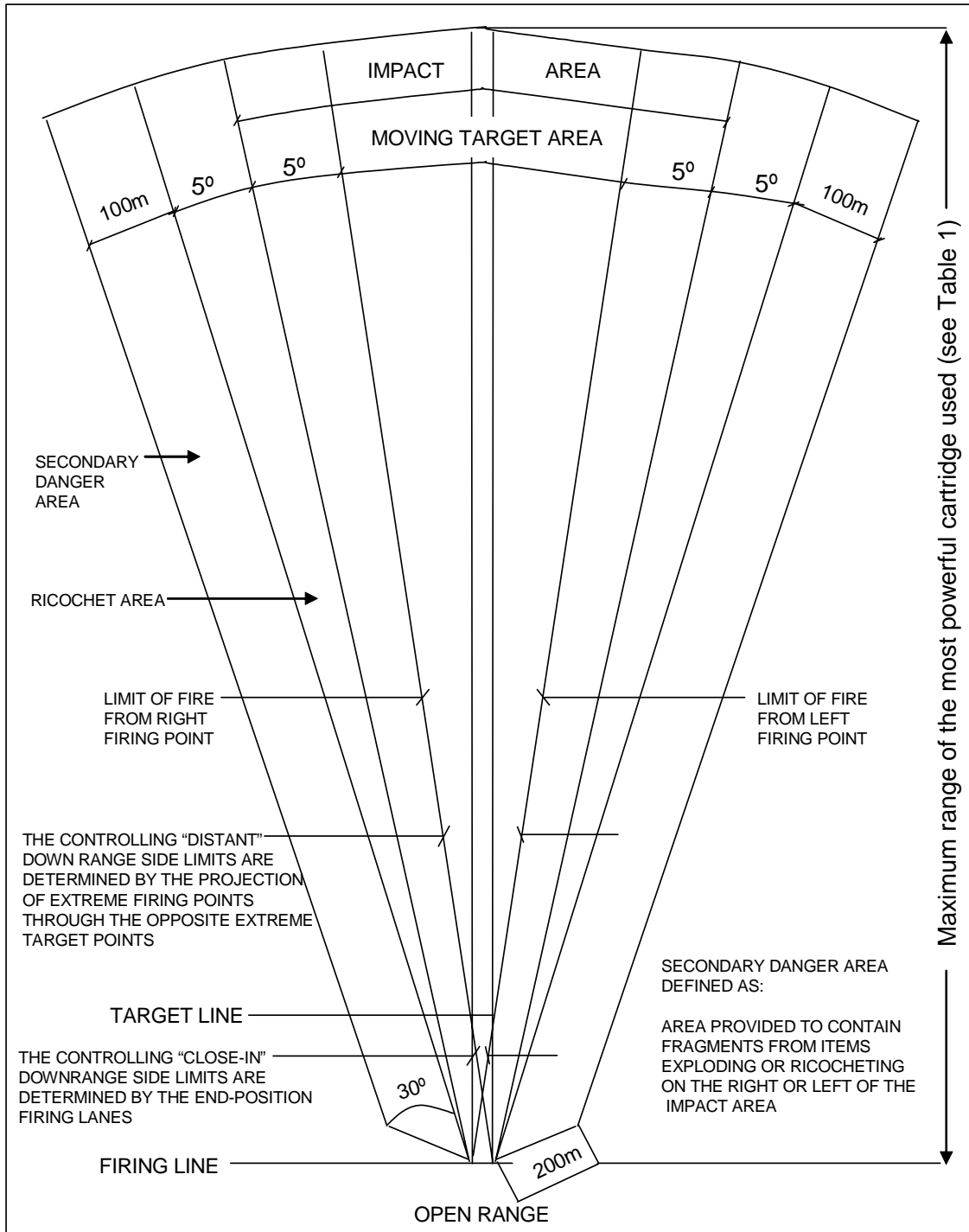


Figure 2
 Surface Danger Zone for Small Arms Weapons
 Firing at Moving Ground Targets

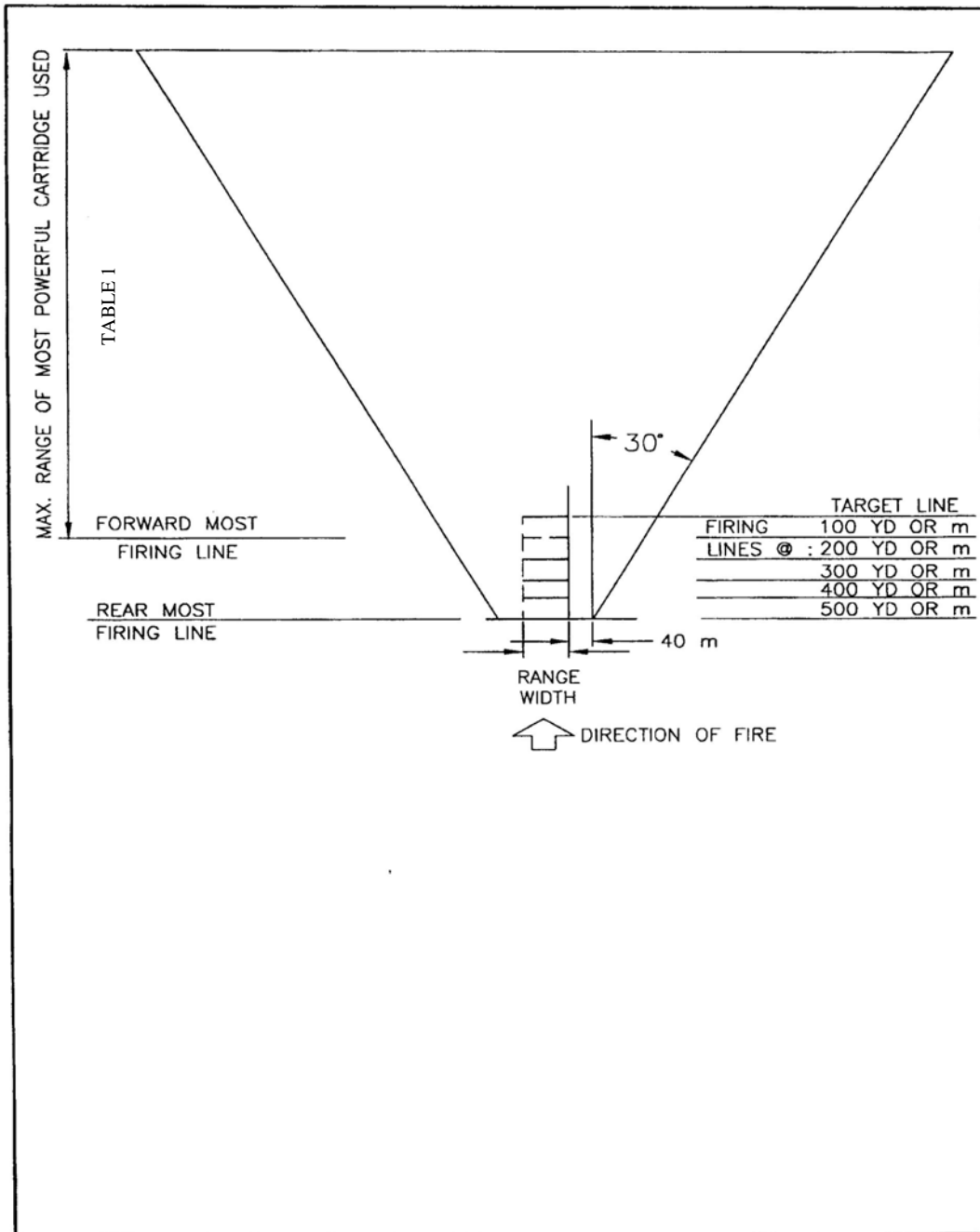


Figure 3
Surface Danger Zone for Small Arms Firing
At Fixed Ground Targets with Rocky Soil
Or Targets Causing Ricochet

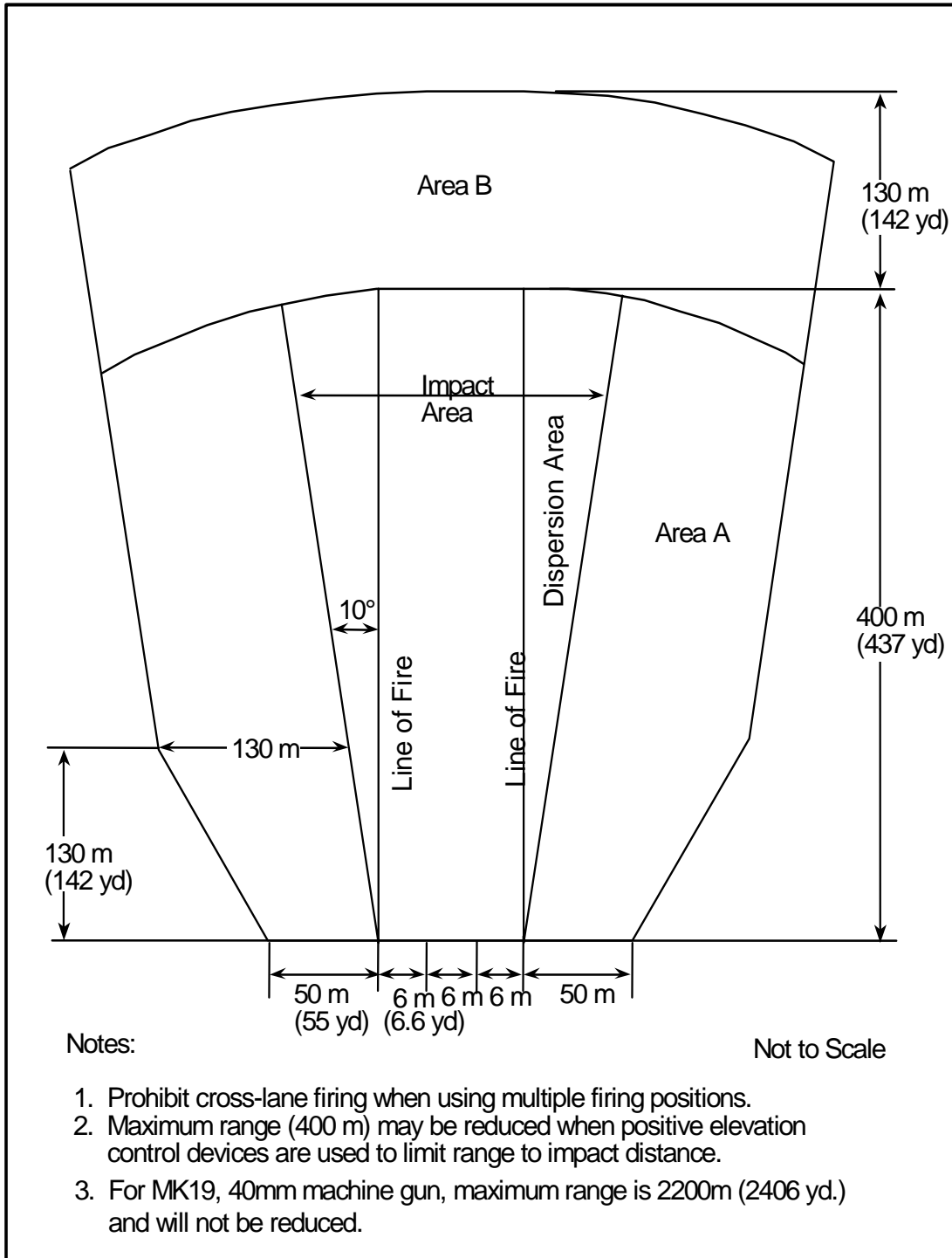


Figure 4
 Surface Danger Zone for Firing
 M79, M203, and M19 40mm Grenade Launchers

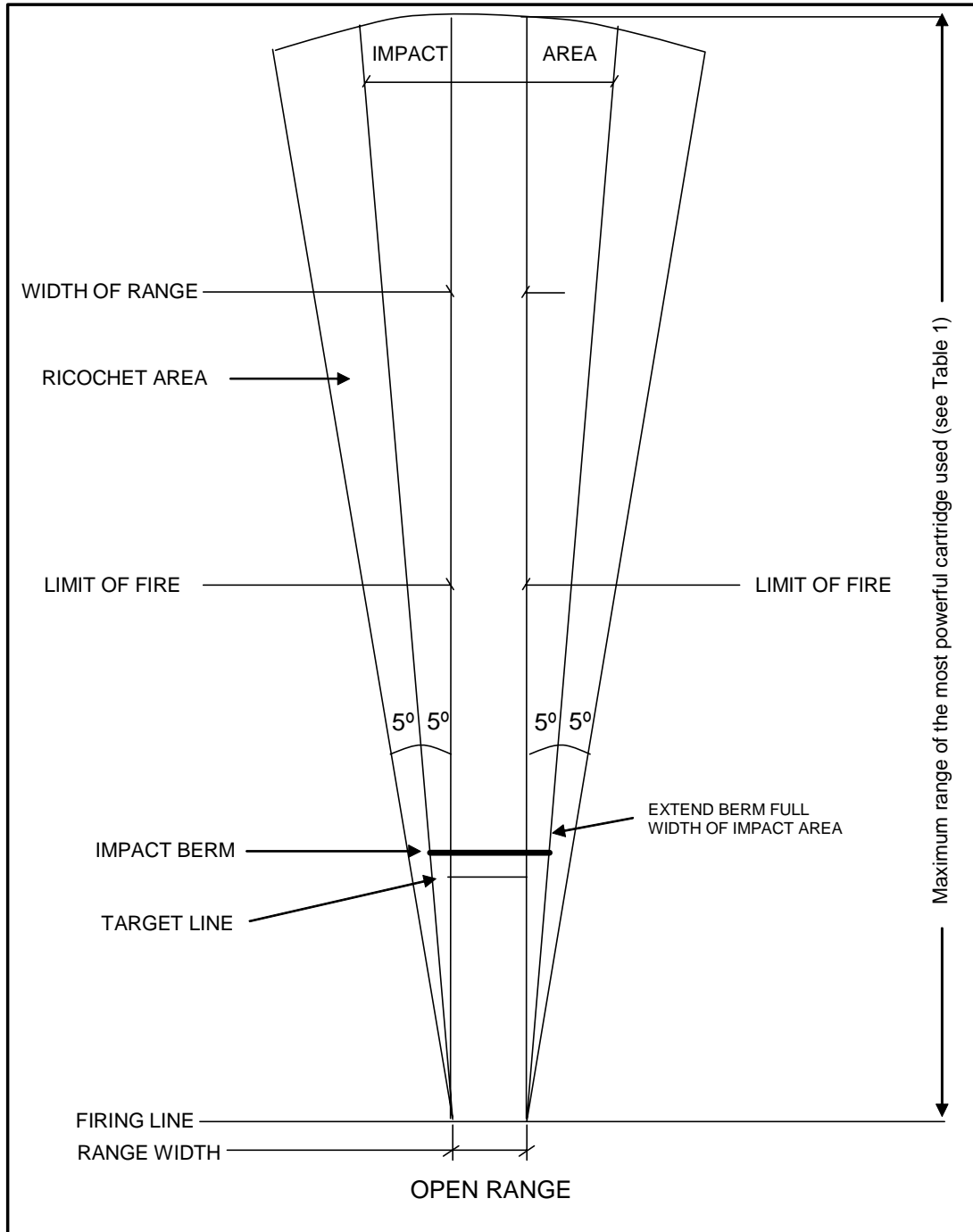


Figure 5
Surface Danger Zone with Impact Berm
for Small Arms Firing at Fixed Ground Targets

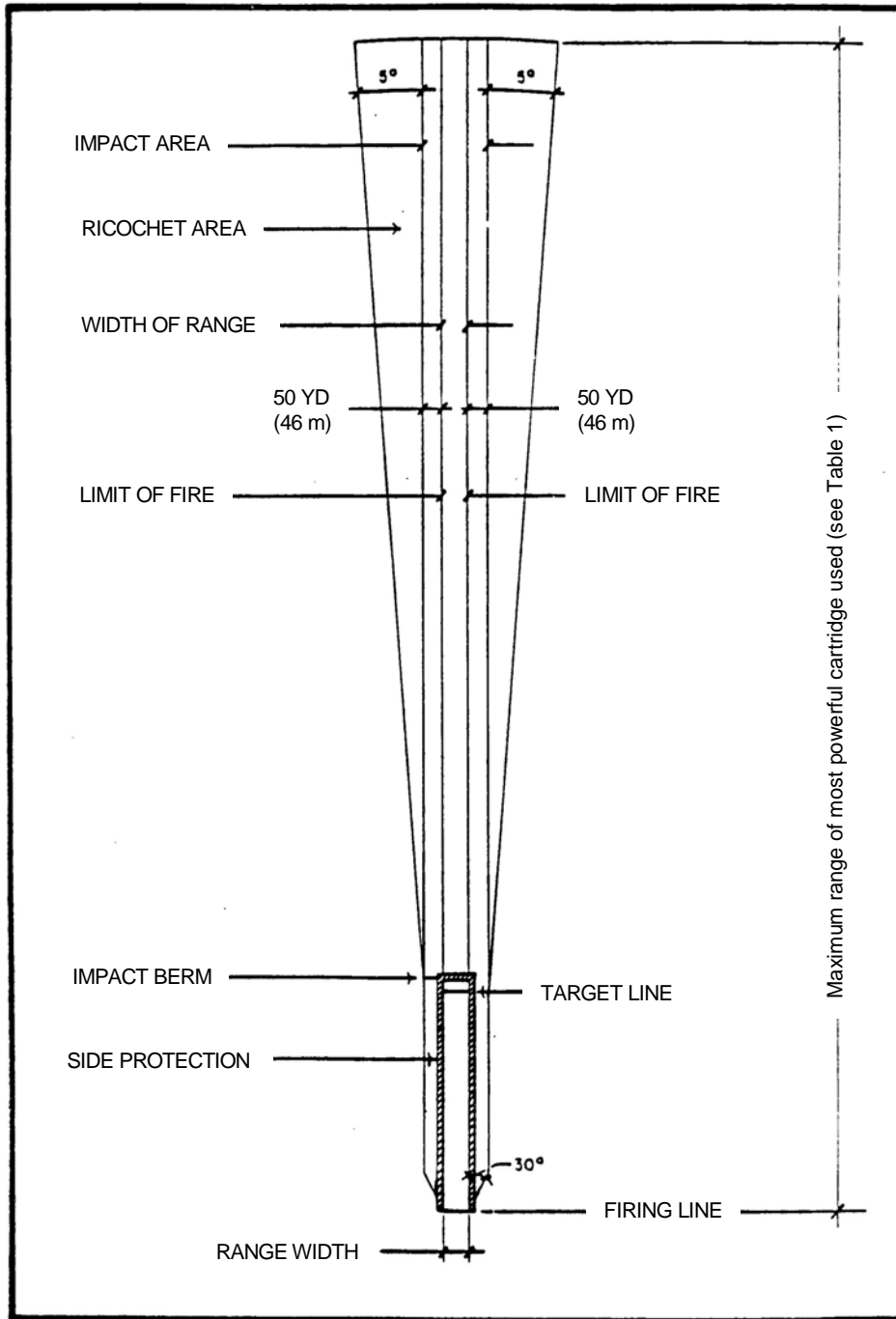


Figure 6

Open Range with Impact Berm and Side Protection Surface Danger Zone for Small Arms Firing at Fixed Ground Targets

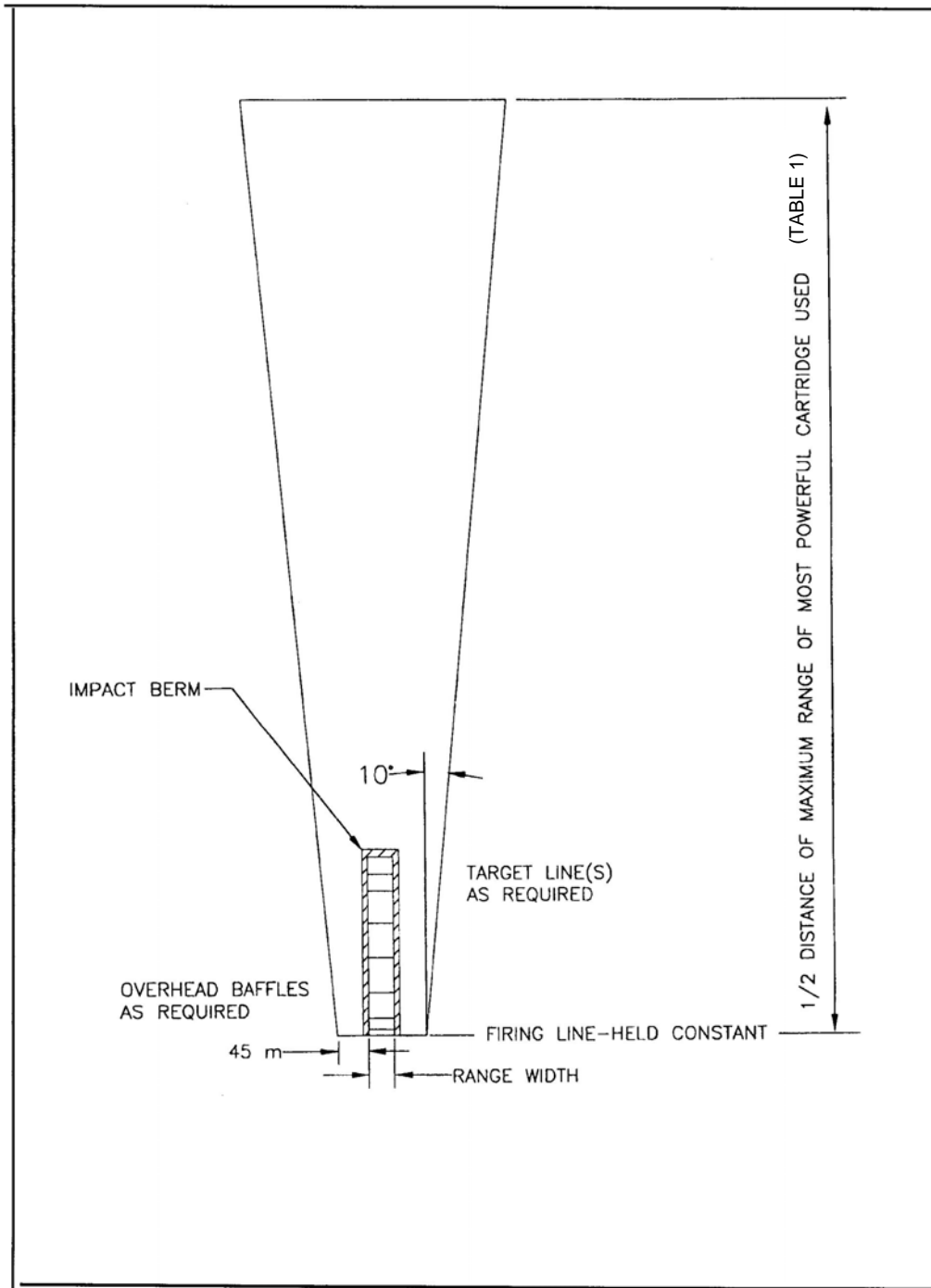


Figure 7
Surface Danger Zone for Partially Baffled Range
(Small Arms Firing at Fixed Ground Targets)

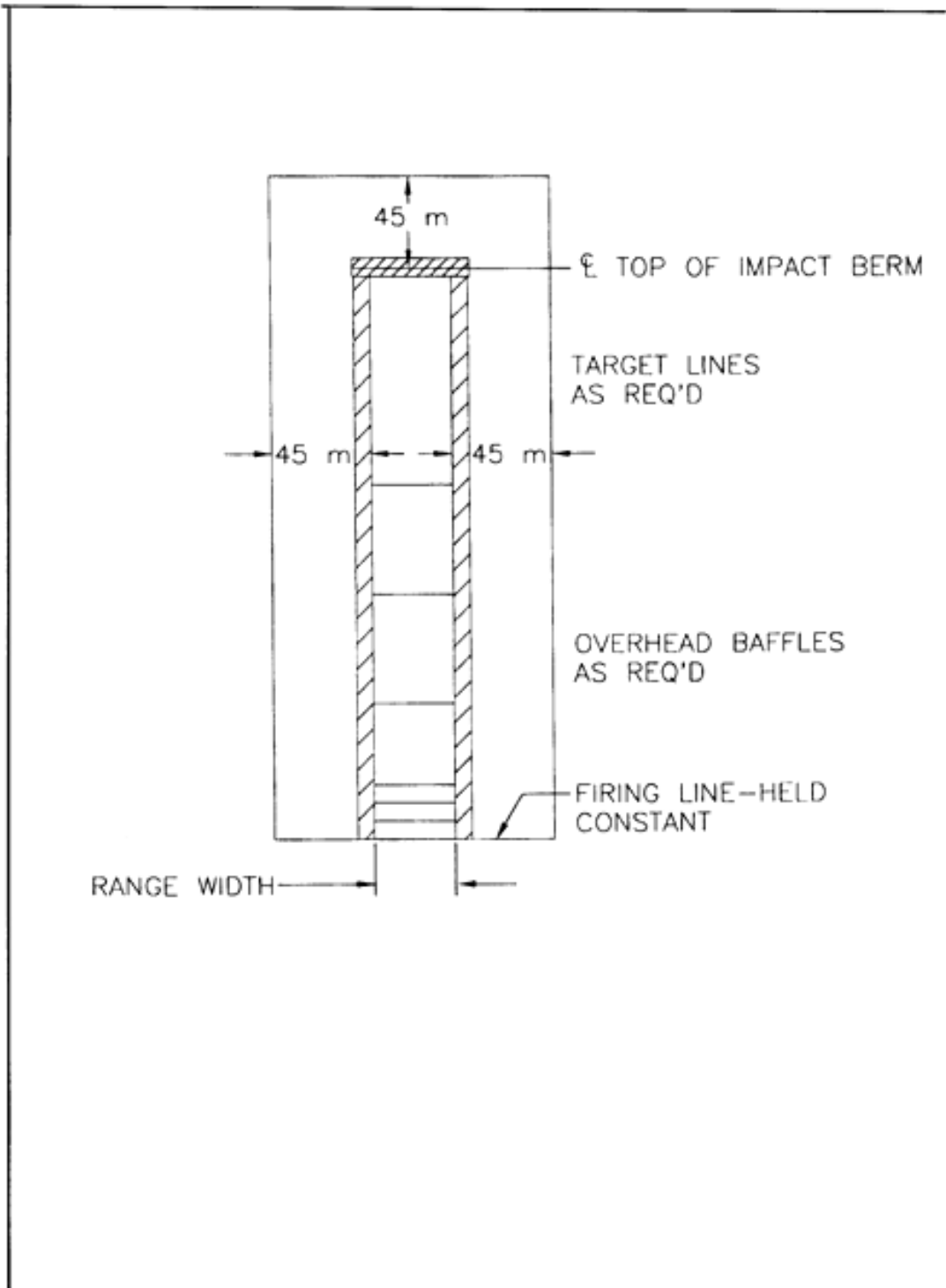


Figure 8
Surface Danger Zone for Fully Baffled Range
(Small Arms Firing at Fixed Ground Targets)

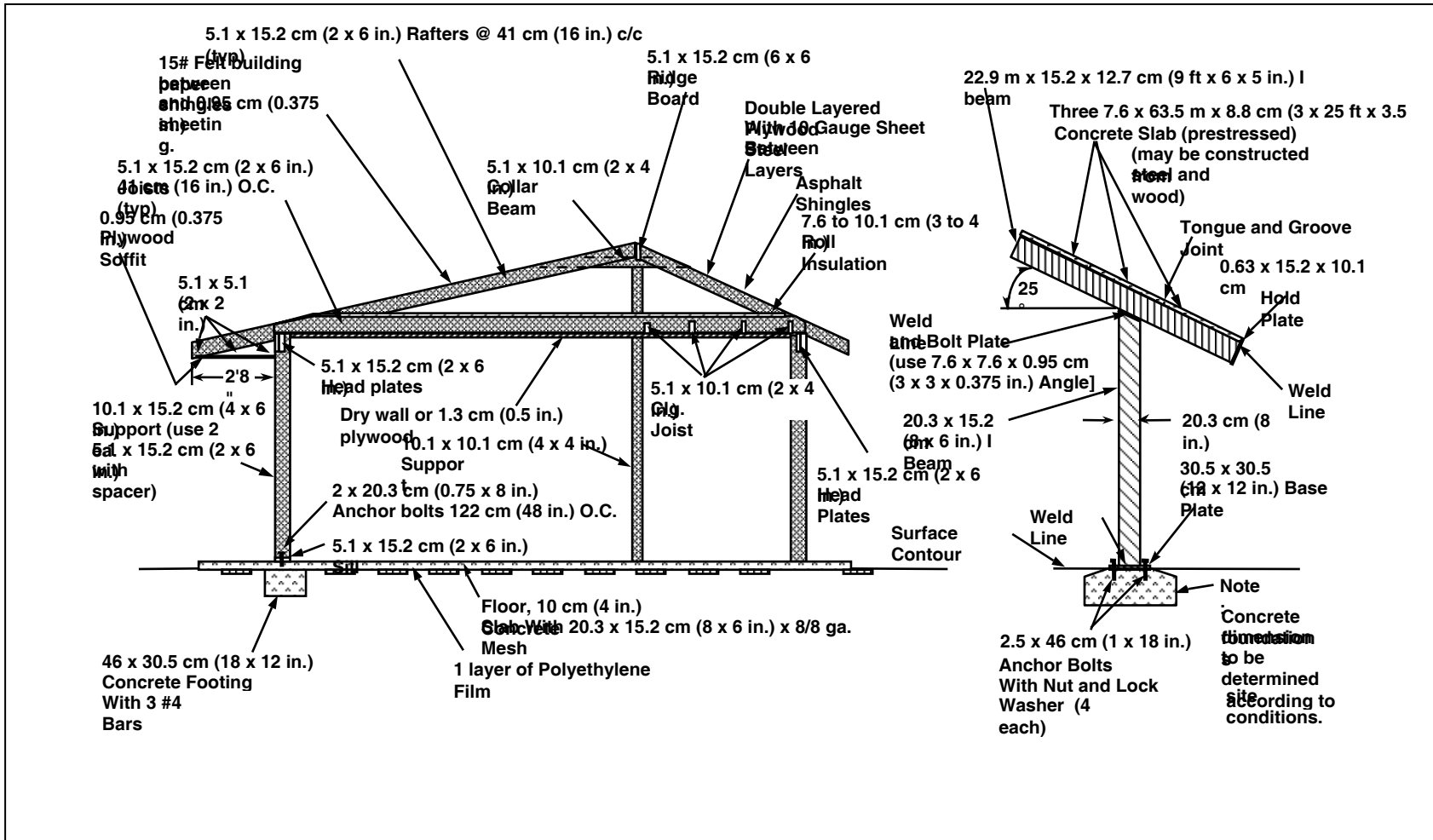


Figure 9
Ballistic Overhead
Canopy

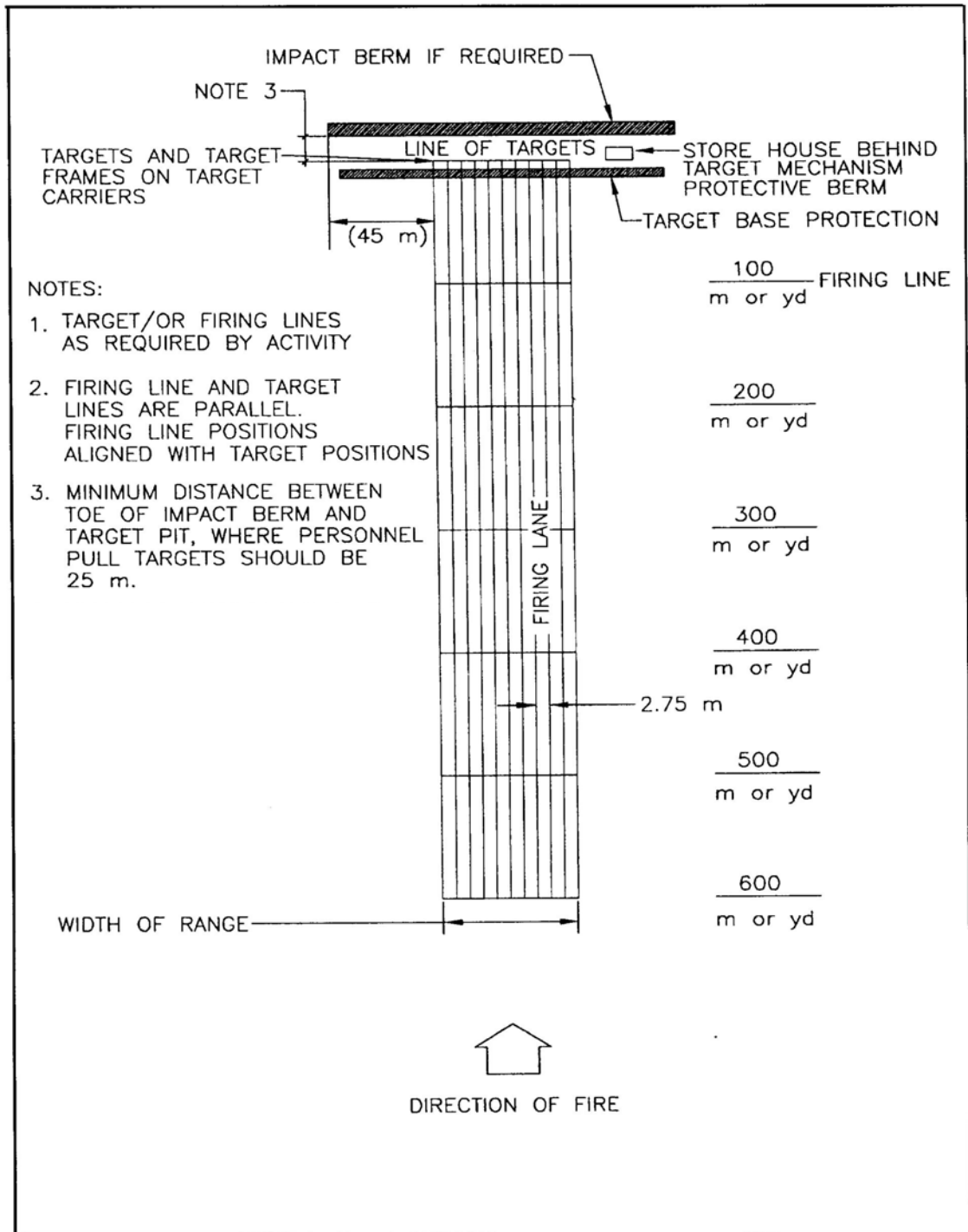


Figure 10
 Outdoor Rifle Range Layout

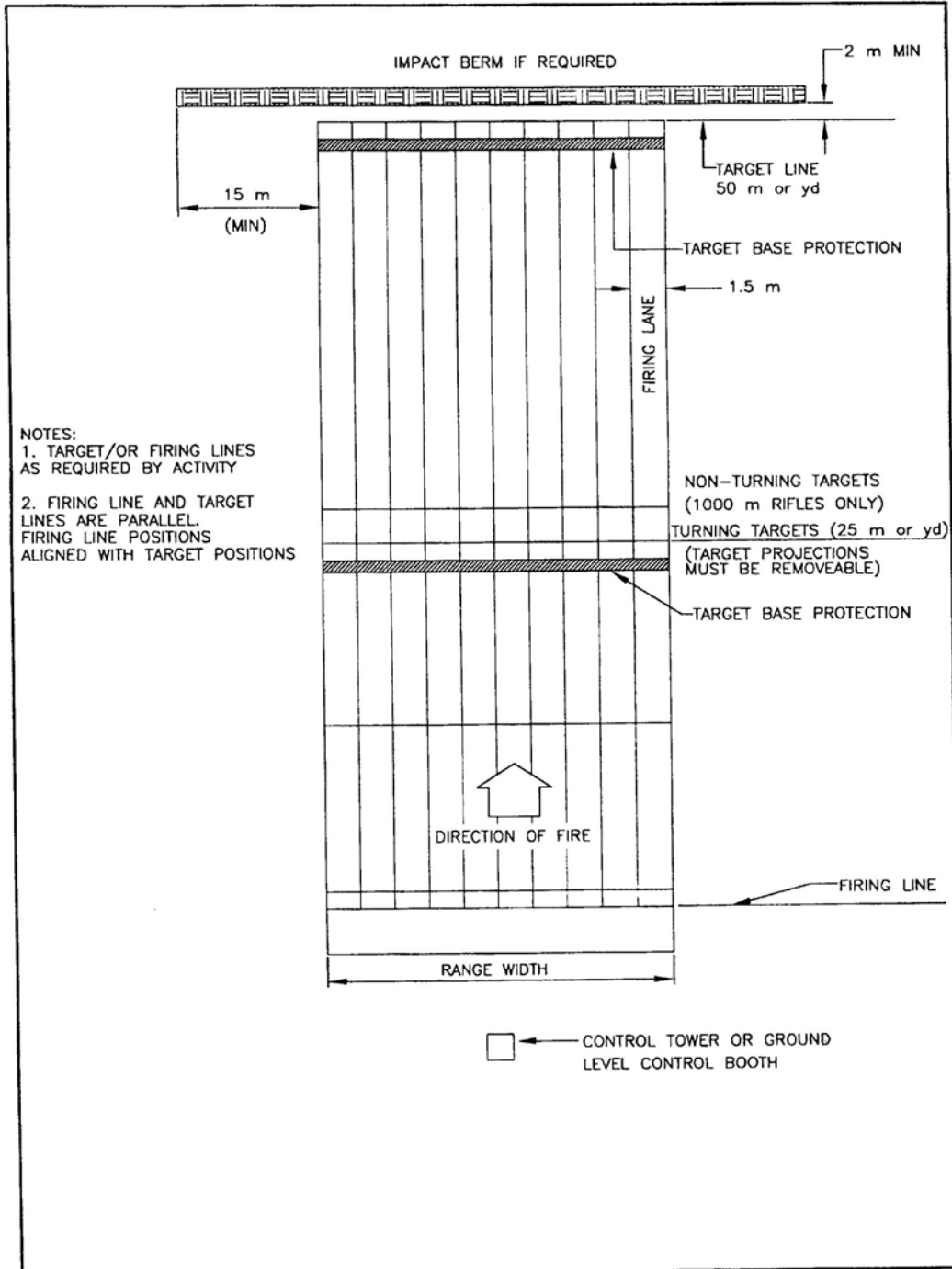


Figure 11
Pistol Range Layout

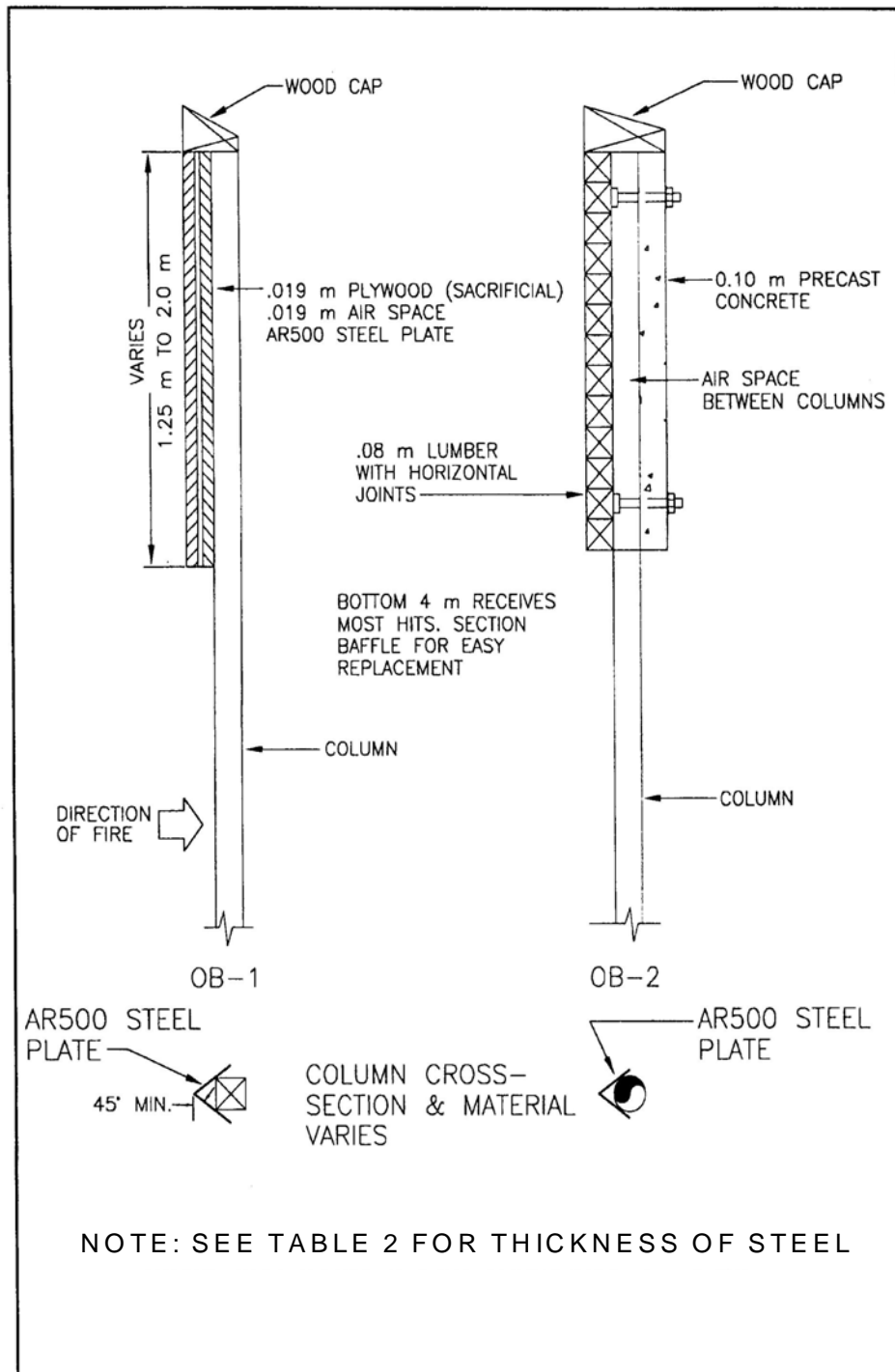


Figure 12
Ballistic Material

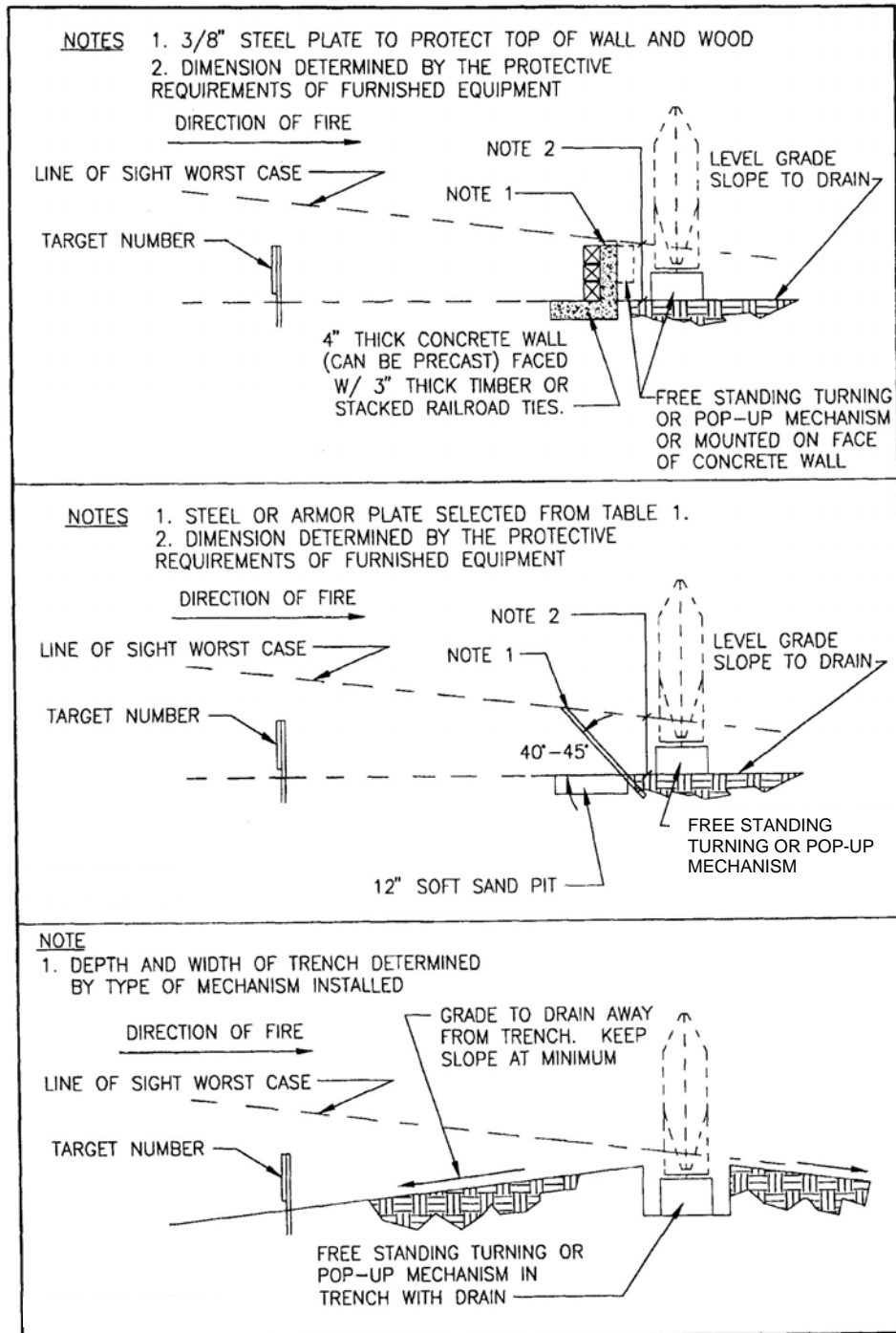


Figure 13
Ballistic Protection of Target Mechanism

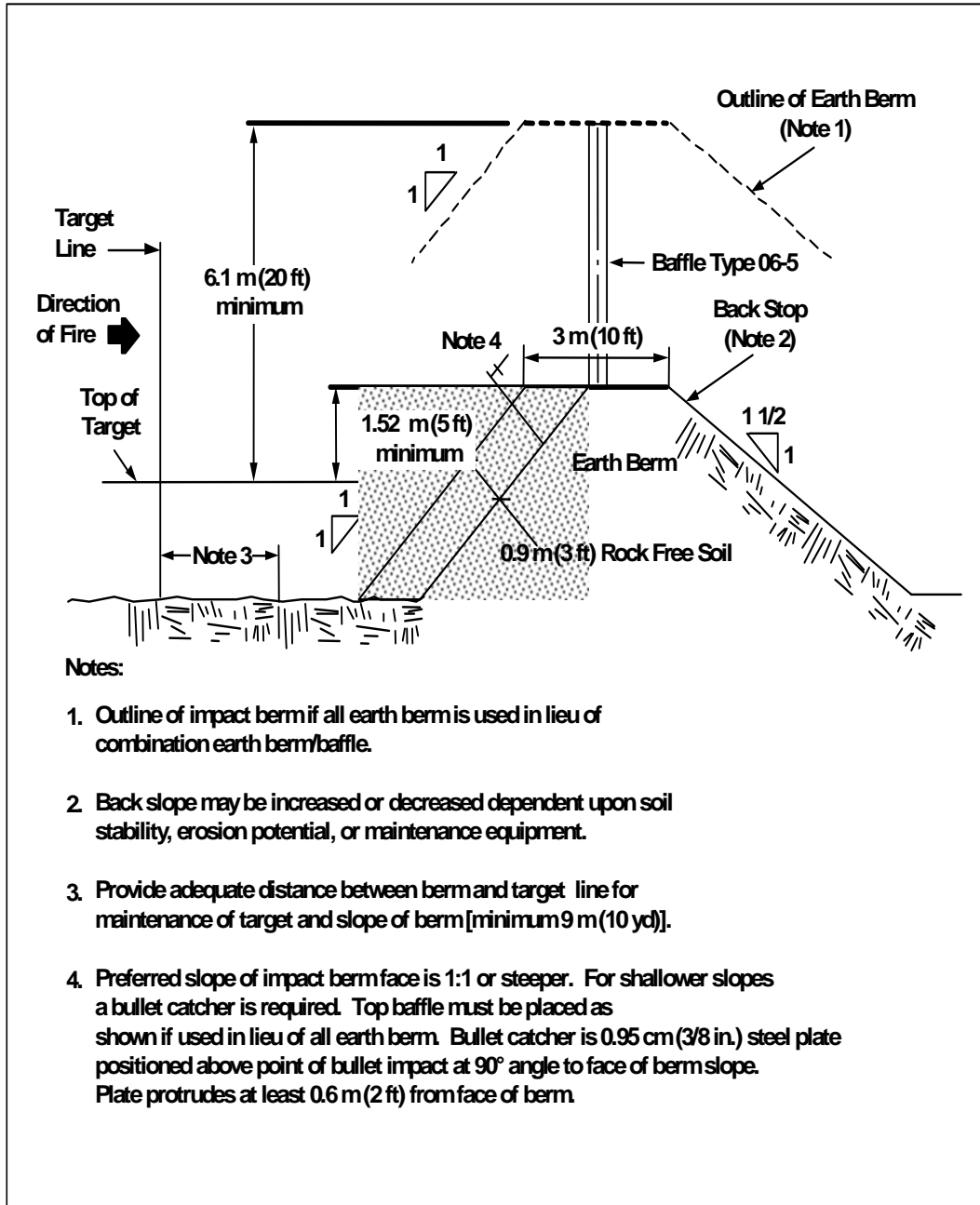


Figure 14
Impact Berm for Open and
Partially Baffled Ranges

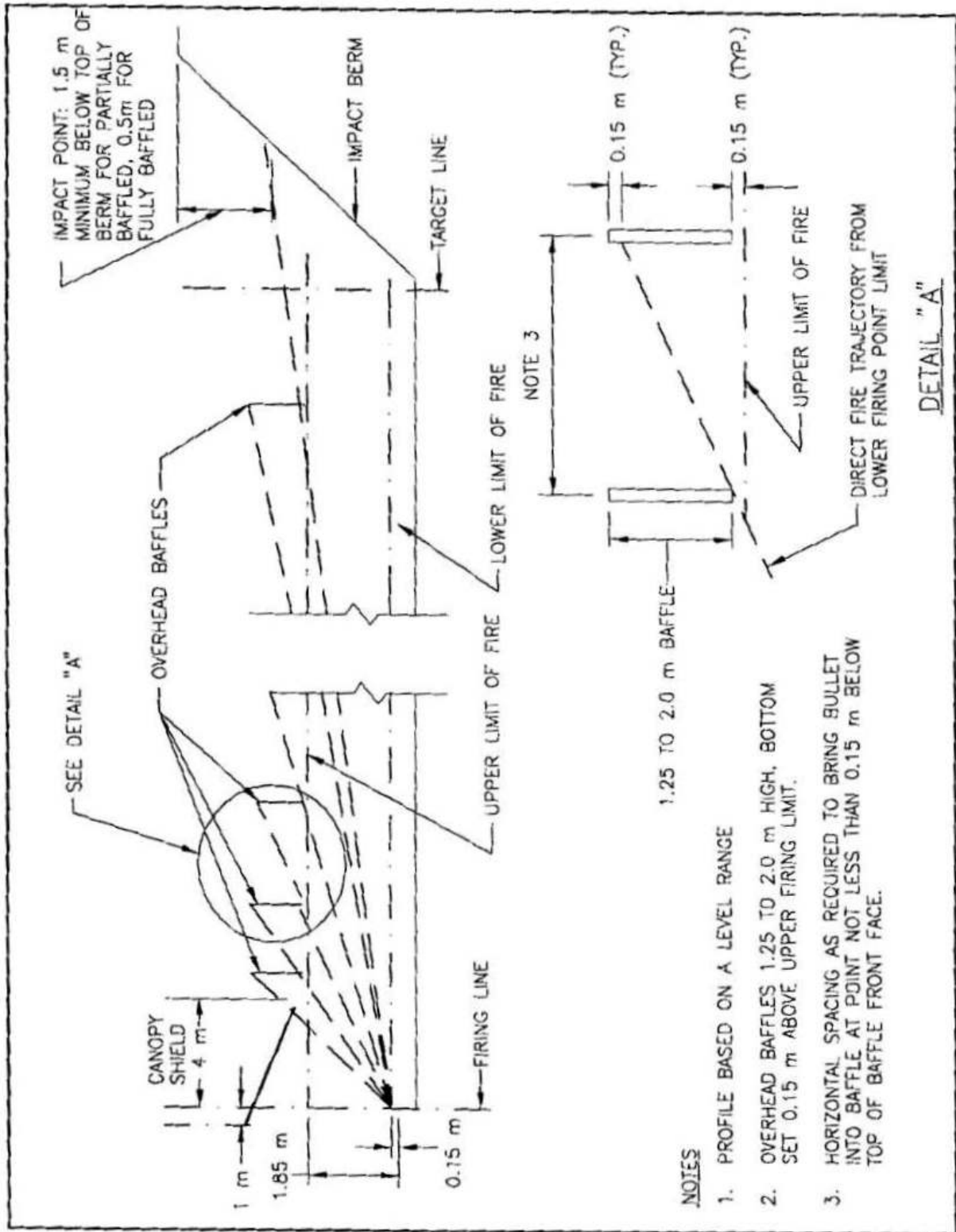


Figure 16
 Baffled Range Profile

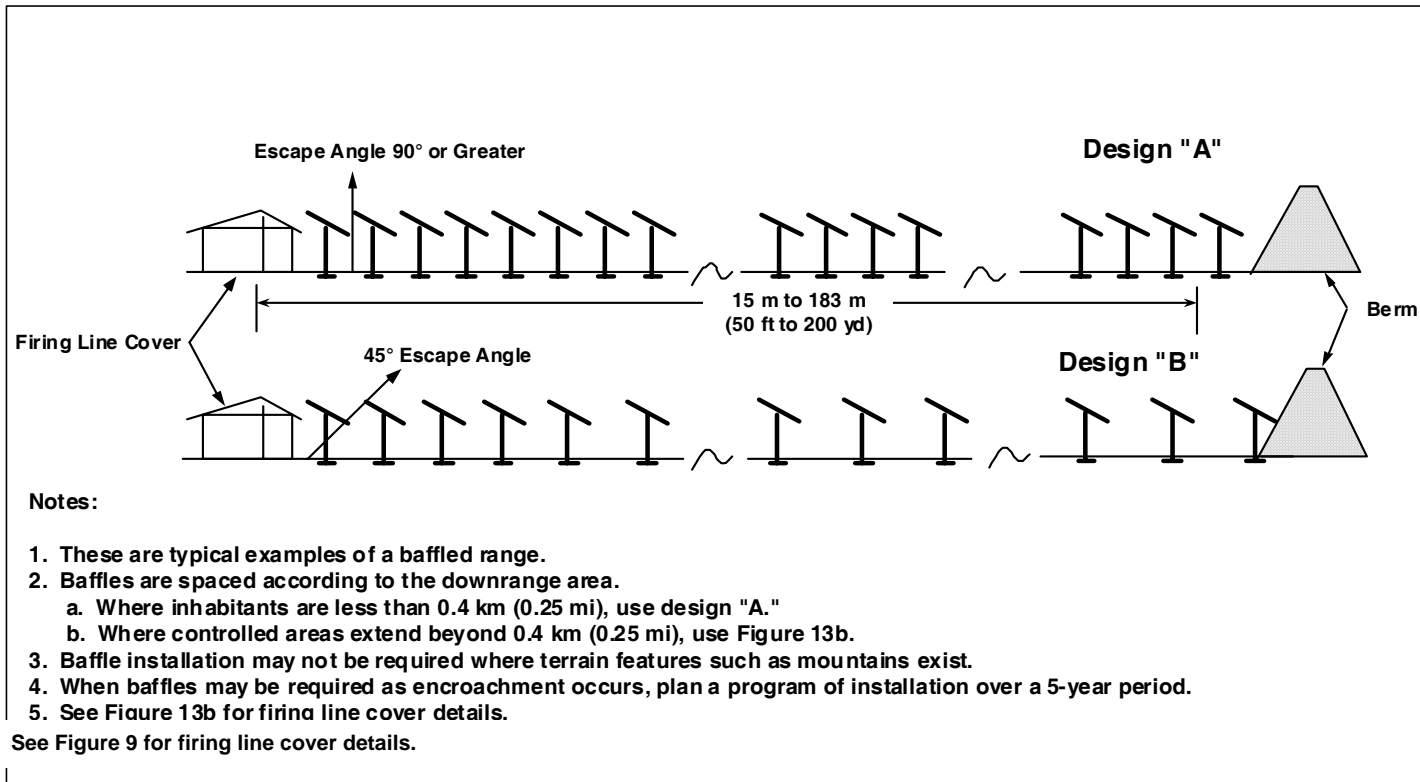


Figure 17
Baffle System Geometry

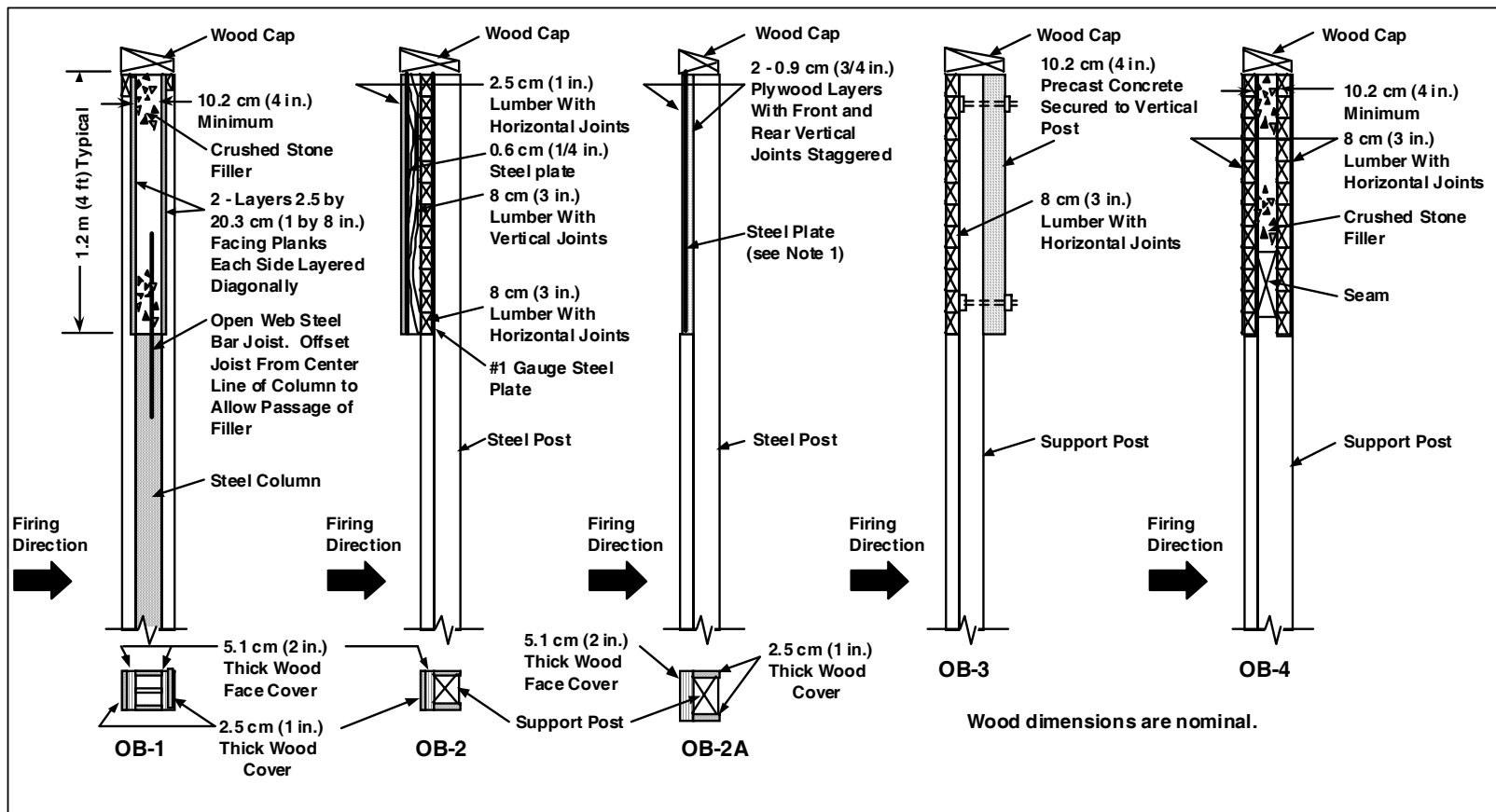


Figure 18
Overhead Baffle Ballistic Designs

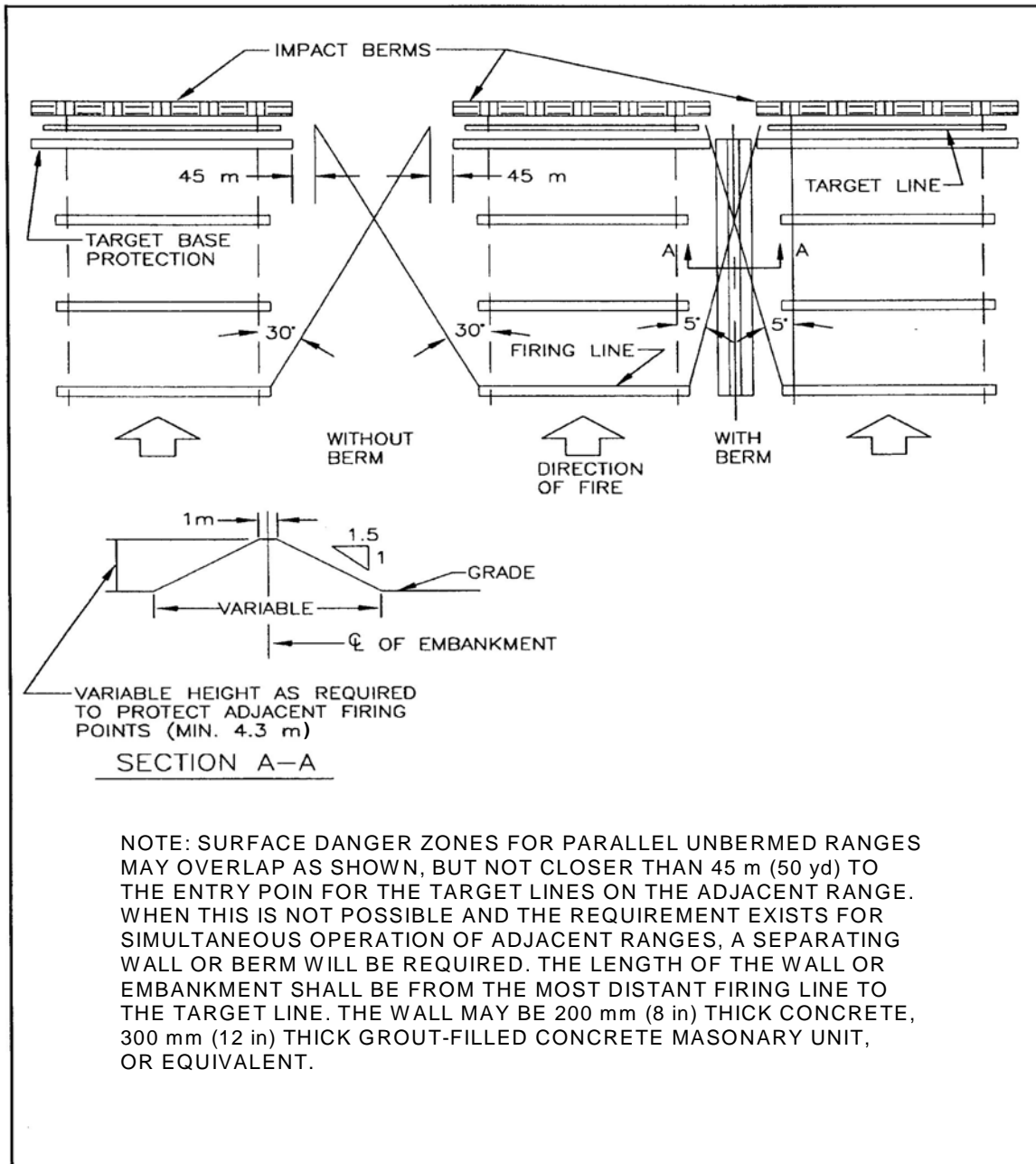


Figure 19
Parallel Ranges

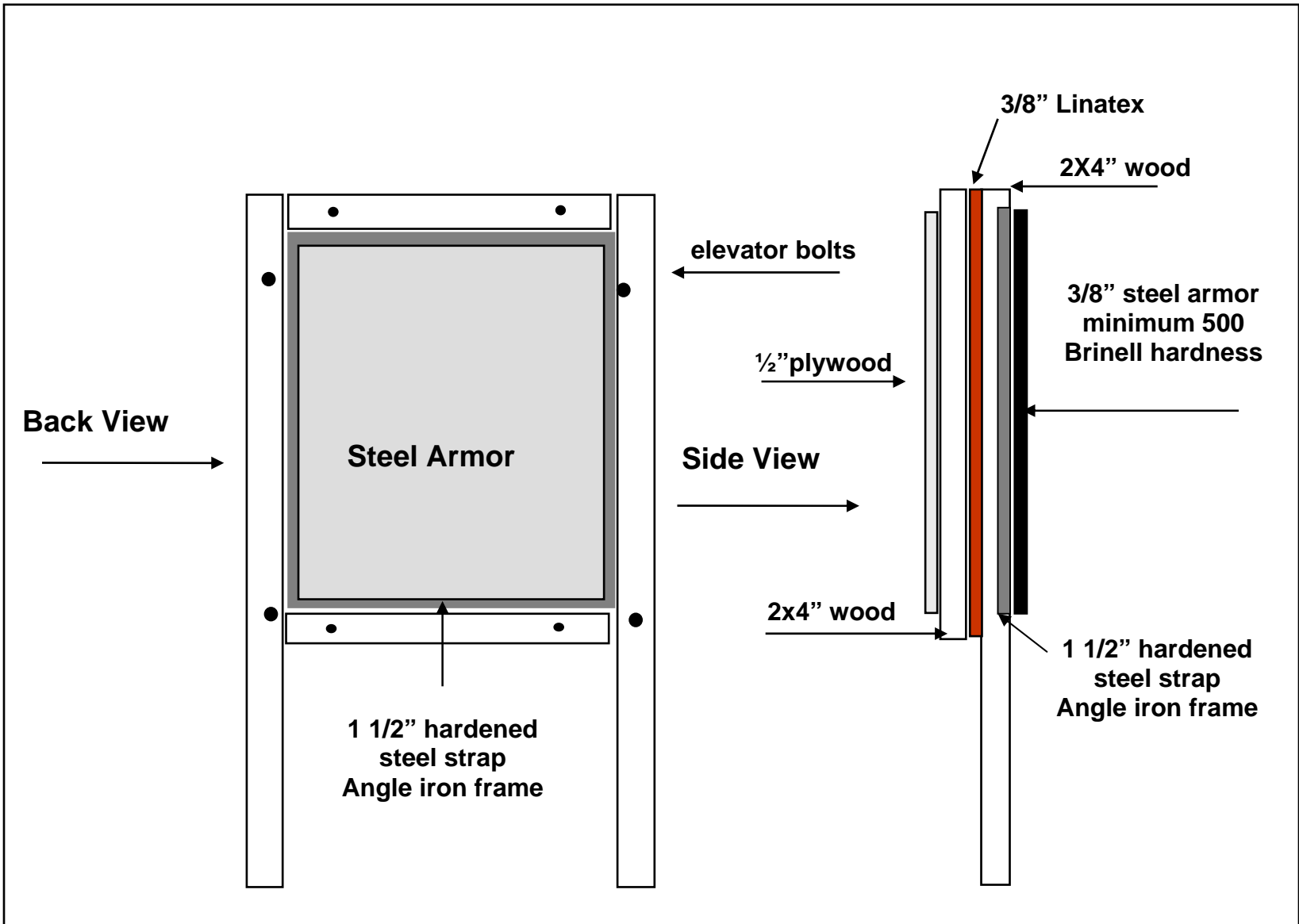


Figure 20
NTC BULLET TRAP

APPENDIX B-6 - DOE FIREARMS MODIFICATION LIST

1. GENERAL.

- a. This Department of Energy (DOE) Firearms Modification List (FML) contains those modifications which have been approved for use on live-fire duty and engagement simulation systems firearms, authorized for use by DOE Protective Forces (PF). These modifications may be conducted after the DOE cognizant security authority has granted approval. Modifications not on the FML must be submitted for approval through the process promulgated in Section B of this Manual, prior to being conducted.
- b. Repair and replacement parts manufactured by vendors other than the original firearm manufacturer may be used if those parts meet the firearms manufacturers' and military specifications requirements.
- c. Refinishing a firearm to maintain serviceability is authorized.
- d. Modifications that alter the safety, reliability and proper functioning of a firearm will not be approved.
- e. If a part or modification is provided by the firearms manufacturer as an optional or available part or modification and this same part/modification is not on the FML, it is an approved modification and does not require a modification approval letter.

2. LIVE-FIRE FIREARMS.

- a. Smith and Wesson (S&W) Revolvers.
 - (1) Replacement grips (e.g., Pachmayr, Hogue), provided the grip or grip screw does not interfere with the functioning of the firearm.
 - (2) Front sight insert replacement.
 - (3) Tritium sight installation.
 - (4) Grip modifications and alterations to facilitate the use of speed loaders.
 - (5) Recess cylinder charge holes to facilitate the use of speed loaders.
 - (6) Wide or target style triggers.
 - (7) Light mounts.
 - (8) Laser aiming devices.
- b. S&W Semi-automatic Pistols.
 - (1) Replacement grips (e.g., Pachmayr or Hogue, including slip-on styles), provided the grip or grip screw does not interfere with the functioning of the firearm.
 - (2) Sight changes to include; colored inserts, tritium sights, bars, dots and variations.
 - (3) Bevel magazine well to facilitate magazine insertion.

- (4) Cut cocking serrations on slide.
 - (5) Checker front and back straps.
 - (6) Install extended slide stop lever as available from a reliable manufacturer.
 - (7) Install extended magazine release button as available from a reliable manufacturer.
 - (8) Laser aiming devices.
- c. Sig Sauer P220 and P226 Semi-automatic Pistols.
- (1) Replacement grips (e.g., Pachmayr or Hogue, including slip-on styles) provided the grip or grip screw does not interfere with the functioning of the firearm.
 - (2) Sight changes to include: colored inserts, tritium sights, bars, dots and variations.
 - (3) Cut cocking serrations on slide.
 - (4) Light mounts.
 - (5) Laser aiming devices.
 - (6) Remove trigger serrations.
- d. Glock Semi-automatic Pistols.
- (1) Factory trigger/connector combinations to alter trigger pulls to lighter or heavier.
 - (2) Grip modifications involving filling the void in the backstrap and reconfiguring the angle of the grip to better fit smaller hand users and installing slip-on Hogue or Pachmayr grips.
 - (3) Factory connector/spring changes to lighten or increase trigger pulls.
 - (4) Sight changes to include colored inserts, tritium sights, bars, dots, and variations.
 - (5) Laser aiming devices.
 - (6) Magazine catch modification for inert weapons.
- e. Remington Model 870 Shotgun.
- (1) Cut stocks for recoil pad installation or length of pull changes.
 - (2) Sling swivels.
 - (3) Fiberglass or composite stocks.
 - (4) Butt cuffs.
 - (5) Side saddles.
 - (6) Extended magazine tubes.
 - (7) Cut long forcing cones in barrel.

- (8) Pistol grips and pistol grip stocks used in tactical breaching guns.
 - (9) Cut and thread barrel for choke tubes and tactical breaching devices.
 - (10) Barrel changes (i.e., length, choking, ribs).
 - (11) Big head safety buttons.
 - (12) Flex-tab conversion.
 - (13) Change followers with high visibility colors.
 - (14) Drill out butt stock for installation of recoil reducer.
 - (15) Sight changes (e.g., to include colored inserts, tritium sights, ghost ring sights, etc.).
 - (16) Drill and tap for installation of scopes or laser aim devices.
 - (17) Light mounts and fore end light units.
- f. Benelli M1 Super 90 Shotgun.
- (1) Cut stocks for recoil pad installation or length of pull changes.
 - (2) Butt cuffs.
 - (3) Side saddles.
 - (4) Cut long forcing cones in barrels.
 - (5) Cut and thread barrels for choke tubes and tactical breaching devices.
 - (6) Barrel changes (e.g., length, choking, etc.).
 - (7) Drill out butt stock for installation of recoil reducer.
 - (8) Sight changes to (e.g., colored inserts, tritium sights, ghost ring sights, etc.).
 - (9) Drill and tap for installation of scopes or laser aim devices.
 - (10) Light mounts and fore end light units.
- g. Heckler and Koch (H&K) MP-5 Submachine Gun (SMG) Series.
- (1) Folding or collapsible stocks.
 - (2) Fore end light units.
 - (3) Light mounts installed with clamps to the outside of the fore end.
 - (4) Laser aiming devices.
 - (5) Metal block to inhibit trigger travel to eliminate full-automatic fire capabilities.
 - (6) Sight changes to include colored inserts, tritium sights, bars, dots, and variations.
 - (7) Factory trigger group exchanges (e.g., Safe/Semi/Full, Safe/Full, Safe/Semi/Burst, ambidextrous, etc.).

- h. Colt M-16 Family and Variants.
 - (1) Replace standard upper receiver with flat top design to facilitate the use of scopes or other aiming devices.
 - (2) Barrel changes (e.g., caliber, length, weight, etc.).
 - (3) Folding or collapsible stocks.
 - (4) Floating handguards.
 - (5) Convert full-automatic to semi-automatic fire by changing the selector lever to semi-automatic type and removing automatic sear.
 - (6) Light mounts.
 - (7) Laser aiming devices.
 - (8) Scope mounts.
 - (9) M-16A2 conversion to carbine (CAR) configuration.
 - (10) Replace standard flash suppressor/hider with more effective types, (e.g., Vortex, etc.).
 - (11) Sight changes (e.g., colored inserts, tritium sights, etc.).
 - (12) Installation of rubber "slip pad" on butt stocks.
 - (13) Three-point sling modification.
 - (14) Rail and alternate sighting (RAS) system.
- i. Heckler and Koch (H&K) G36 Rifle. Remove carrying handle and factory sights and replace with RAS.
- j. Remington Model 700 Precision Rifle.
 - (1) Glass bedding and glass/pillar bedding.
 - (2) Sling swivel installation.
 - (3) Cut stocks for recoil pad installation or length of pull changes.
 - (4) Bi-pod installation.
 - (5) Scope mounts.
 - (6) Laser aiming devices.
 - (7) Fiberglass or composite stock installation/replacement.
 - (8) Recoil reducers and flash suppressors/hider.
 - (9) Barrel changes (e.g., fluted, stainless, heavy contour, match, or target styles).
 - (10) Cut and re-crown barrels to enhance accuracy.
 - (11) Change factory recoil lug to heavy-duty type offered by manufacturers such as Shilen.

- (12) Convert floor plate style magazine to magazine fed (e.g., Kwik-Klip or M-14 magazine conversions).
 - (13) Cryogenic treatment of barrel and action to extend barrel life and improve accuracy.
 - (14) Replacement of factory trigger guard screws with Allen or torque style headed screws.
 - (15) Installation of Shilen or match style triggers.
 - (16) Noise suppressors.
- k. Colt M-203 Grenade Launcher/Rifle. Mounting M-203 independent of the M-16 by affixing it into its own stock assembly.
- l. Others. The following firearms to date have no modifications approved for live-fire duty use:
- (1) H&K P7 Pistol;
 - (2) Fabrique Nationale (FN) M240 & M249 Light Machine Guns (LMGs);
 - (3) SACO/M-60 LMG;
 - (4) Ruger Mini-14 Rifle;
 - (5) H&K 21 Rifle;
 - (6) H&K G69 Grenade Launcher;
 - (7) Barrett Model 82A1;
 - (8) M-79 Grenade Launcher.
3. ESS FIREARMS.
- a. Military M-16 Series Rifles (M-16A1, M-16A2, CAR, AR-15, etc.).
 - (1) Blank fire adaptor (BFA).
 - (2) Live round inhibitor (LRI).
 - (3) Modified blank only magazine first, second, and third generations.
 - (4) Magazine well block.
 - (5) Chamber porting procedure (CPP).
 - (6) Chamber porting sleeve.
 - b. Remington 870 Shotgun.
 - (1) LRI.
 - (2) Blast deflector (BD).
 - c. S&W Revolver.
 - (1) LRI.
 - (2) Laser tube in barrel.

- d. Remington Models 700 & 78 Precision Rifles.
 - (1) LRI.
 - (2) BD.
 - (3) Live round magazine block (LRMB).
- e. Ruger Mini-14 Rifle.
 - (1) BFA.
 - (2) LRI.
 - (3) LRMB.
- f. M-14 Rifle.
 - (1) BFA.
 - (2) LRI.
 - (3) LRMB.
 - (4) BD.
- g. M-60 LMG.
 - (1) BFA.
 - (2) LRI.
 - (3) Blank only feed tray.
 - (4) BD.
 - (5) CPP.
 - (6) Cut recoil spring.
- h. H&K MP-5 SMG Series.
 - (1) BFA.
 - (2) Magazine well blocking pin.
 - (3) Modified Magazine.
 - (4) Chamber insert, Allied Signal barrel.
 - (5) Modified suppressor.
- i. H&K G-3, 33, etc., Rifles.
 - (1) BFA.
 - (2) LRMB.
 - (3) CPP.

- j. H&K M-21 LMG.
 - (1) BFA.
 - (2) LRI.
 - (3) Blank only feed tray.
 - (4) BD.
 - (5) CPP.
- k. Barrett Model 95 Rifle.
 - (1) Single-shot only conversion.
 - (2) LRI.
 - (3) Honeywell designed blank block.
- l. FN M-249, M-240 LMGs and Variants.
 - (1) Modified feed tray.
 - (2) BFA.
 - (3) CPP.
- m. UZI, MAC 10, and Colt 9mm SMGs.
 - (1) Allied Signal barrel.
 - (2) Magazine well block.
 - (3) Modified magazine.

SECTION C - FIREARMS QUALIFICATION COURSES

CHAPTER I - INTRODUCTION

1. SCOPE. Firearms qualification courses described in this Section are approved by the Office of Security for firearms qualification and requalification to ensure that protective force (PF) personnel are uniformly qualified with the firearms they are authorized to carry. The courses evaluate basic shooting skills with various authorized firearms. Additional requirements for firearms training and qualifications are set forth in 10 Code of Federal Regulations (CFR) Part 1046, *Physical Protection of Security Interests*, and Section A of this Manual. The courses provide the specific implementation of 10 CFR Part 1046, *Physical Protection of Security Interests*, which requires PF personnel to have the level of skills and knowledge needed to perform all essential functions associated with PF job responsibilities. Site-specific conditions and the deployment of firearms may justify requirements for developing and implementing supplementary special firearms training and qualification courses (e.g., aerial firing platforms, executive protection, vehicle mounted firearms). If this Section does not contain a course applicable to a site-specific deployment of firearms, then such supplementary courses must be developed. The Office of Security, in consultation with the responsible Program Office or the Administrator, National Nuclear Security Administration (NNSA), will approve these supplementary courses, as applicable. All firearms courses must be conducted in accordance with DOE O 440.1A, *Worker Protection Management for DOE Federal and Contractor Employees*, and this Section.

PF personnel must demonstrate acceptable marksmanship and proficiency in related shooting skills in order to pass the firearms qualification courses. Periodic training must supplement all courses in this Section. Shooting skills are enhanced by training and testing knowledge, skills, and abilities, as appropriate (e.g., firearms manipulation; target discrimination; the engagement of moving, multiple, and reactive targets; and shooting under stress). The firearms qualification courses in this Section may be used for training and must be used to determine whether PF personnel are qualified to be armed with a particular firearm. All firearms qualification courses must be conducted by firearms instructors certified by the Department of Energy (DOE) National Training Center (NTC) for instruction in the various firearms used during the specific courses (e.g., a Submachine Gun Qualification Course must be conducted by an instructor certified at the Advanced Firearms Systems Instructor Certification level).

2. CONTENT. This Section devotes separate chapters to basic courses of fire for the following five types of firearms: handgun, rifle, shotgun, submachine gun (SMG), and light machine gun (LMG). Three specialized groups of courses: 1) shooting-on-the-move; 2) precision rifle; and 3) live-fire shoot house (LFSH), are also addressed by separate chapters. All courses are executed under daylight conditions, but selected courses are also fired under reduced lighting conditions.
 - a. Appendix C-1 provides requirements for lighting standards and measurement techniques.

- b. Appendix C-2 sets forth the remedial qualification course.
 - c. Appendix C-3 provides target specifications and scoring details and requirements.
 - d. Appendix C-4 contains descriptions of scoring templates used during Precision Rifle Qualification Courses.
 - e. Appendix C-5 describes the practical shooting courses.
3. REQUIREMENTS. Armed PF personnel must qualify semi-annually (at least every 6 months) with assigned firearms on the applicable DOE Firearms Qualification Courses.
- a. Security Police Officer (SPO)-I/SPO-IIs.
 - (1) Assigned a handgun must, at a minimum, fire the Day and Reduced Lighting Handgun Qualification Courses.
 - (2) Assigned a handgun and rifle must, at a minimum, fire the Day and Reduced Lighting Handgun and Rifle Qualification Courses.
 - b. SPO-IIIs.
 - (1) Assigned a handgun and rifle/SMG must, at a minimum, fire the SPO-III Day Combined Handgun and SPO-III Day Combined SMG/Rifle Qualification Courses, the Reduced Lighting Handgun and SMG/Rifle Reduced Lighting Qualification Courses, and the LFSH Closed Door Skills Test Qualification Course.
 - (2) Assigned a handgun, rifle, and precision rifle must, at a minimum, fire the courses listed in paragraph 3.b.(1), above, and the Day and Reduced Lighting Precision Rifle Qualification Courses.
 - c. Substitution of Practical Shooting Courses. Consistent with local collective bargaining agreements and other site considerations, sites are authorized to substitute selected practical shooting courses from Section C, Appendix C-5, to be fired for qualification during one of the semi-annual (at least every 6 months) qualifications periods, in lieu of the standard, applicable firearms qualification courses.
 - d. Other Qualification Courses. Sites should utilize the various other courses in this Section for SPO firearms maintenance, refresher, and proficiency training. As an example, SPO-IIs can fire the Shooting-on-the-Move Course to enhance their firearms proficiency and response skills.
4. REVIEW. This section must be reviewed annually (at least every 12 months) by the DOE Firearms Quality Panel, which may recommend changes, as required. DOE cognizant security authorities are encouraged to forward written recommendations for changes or comments, with sufficient detail for consideration, to the Office of Safeguards and Security Policy.

CHAPTER II - GENERAL INSTRUCTIONS FOR FIREARMS QUALIFICATION COURSES

The following general instructions must be followed during firearms qualification courses.

1. Shooters must maintain silence on the line so they can hear and interpret range commands.
2. All range commands or questions to the line must be issued by the lead instructor.
3. Shooters must not move off the line or pick up any equipment or brass until the line is declared safe and the line is told to act by the lead instructor.
4. Shooters on the line must commence firing on command only. Shooters must cease fire immediately when commanded to do so.
5. A shooter on the line holding a firearm must always maintain the muzzle pointed downrange.
6. Shooters must fire all rounds center of mass of the target presented to them, unless otherwise directed.
7. Shooters must always wear approved sight and hearing protection.
8. Shooters may touch the trigger only when the sights of the firearm are aligned with the target. Until then, the shooters must keep their trigger fingers extended straight alongside the receiver or frame.
9. Shooters must not attempt to catch brass or to eject brass into collection containers.
10. Shooters must reload using ammunition pouches, speed loaders, magazines, or magazine pouches that are provided and/or worn on duty. Pouches or carriers that require snaps or other closures must be in the snapped or closed position before initiation of a stage.
11. The lead instructor must ensure the firing line is clear of debris (e.g., magazines, brass, and ammunition boxes) and equipment to prevent injury to shooters moving from one position or distance to another.
12. If a shooter experiences a malfunction during a course, he or she must attempt to clear the malfunction using proper clearing methods. If the shooter properly clears the malfunction and the threat remains, the shooter will complete the course of fire. If the threat is no longer visible, an alibi is provided.
13. If a shooter experiences a malfunction during a course, and does not attempt to clear that malfunction using proper clearing methods, an alibi will not be provided.
14. Shooters with an alibi must be allowed to complete a string.
15. Adjustable sights on all non-individually assigned firearms must be set in a standard manner so all shooters know the point of impact and can make aiming adjustments quickly and consistently to permit accurate initial fire.
16. The lead instructor may authorize firearms or magazines to be fully loaded, unless otherwise specified, for all stages/strings; however, the shooter must clear the chamber between stages when the next stage begins at a half load.

17. Shooters using a firearm equipped with a selector lever must ensure that it is returned to the safe position after every string, unless otherwise directed by the lead instructor.
18. Shooters must place a shoulder-fired firearm to the shoulder and align the sights with the target for every string, unless the stage specifies another position (i.e., the low ready).
19. When required, shooters must use only flashlights that are approved. These flashlights must have a pressure switch that turns the flashlight on when pressed and turns the flashlight off when released.
20. When firing for qualification, Security Police Officers (SPOs), according to SPO level, must wear all equipment required by Section A, Chapter VI, 1.b. and site-specific requirements for duty and tactical responses.

Stage II

Technique: Immediate response to a lethal threat at a short distance.

Yard line:	7	
Total rounds:	6	
Targets:	1	
Load with:	6 rounds	
Strings:	2	
Position:	Standing	
Procedure:	String 1:	Draw and fire 2 rounds center of mass and 1 round at the head within 5 seconds.
	String 2:	Same as Stage II, String 1.

Stage III

Technique: Use of the weak hand in lieu of the strong hand to engage a lethal threat at a short distance. The shooter's strong arm will not be used for support. The strong hand must be relaxed and hanging by the shooter's side.

Yard line:	7	
Total rounds:	6	
Targets:	1	
Load with:	6 rounds	
Strings:	3	
Position:	Standing	
Procedure:	String 1:	Begin with the handgun in the unsupported weak hand at the low ready. Fire 2 rounds within 4 seconds.
	Strings 2, 3:	Same as Stage III, String 1.

Stage IV

Technique: Immediate and continuing response to a lethal threat at a moderate distance and commencement of fire from the low ready.

Yard line:	10	
Total rounds:	12	
Targets:	1	
Load with:	6 rounds	
Strings:	5	
Position:	Standing	
Procedure:	String 1:	Draw, fire 2 rounds within 4 seconds. Remain at the low ready.

String 2:	From the low ready, fire 2 rounds within 3 seconds.
String 3:	Draw and fire 2 rounds. Reload and fire 2 rounds.
Time limit:	Revolver: 12 seconds Semiautomatic: 10 seconds
String 4:	Same as Stage IV, String 1.
String 5:	Same as Stage IV, String 2.

Stage V

Technique: Immediate and continuing response to a lethal threat at a moderate distance while moving to a more advantageous shooting position, reloading, and commencing fire from the low-ready.

Yard line:	15
Total rounds:	12
Targets:	1
Load with:	6 rounds
Strings:	5
Position:	Standing and kneeling
Procedure:	String 1: Draw, kneel, and fire 2 rounds within 5 seconds. String 2: Same as Stage V, String 1. String 3: From the standing position, draw and fire 2 rounds. Reload while assuming a kneeling position and fire 2 rounds. Time limit: Revolver: 14 seconds Semiautomatic: 12 seconds String 4: From the standing position, draw and fire 2 rounds within 5 seconds. Remain at the low ready. String 5: From the low-ready position, fire 2 rounds within 3 seconds.

Stage VI

Technique: Immediate and continuing response to a lethal threat at a moderate distance and use of a barricade for cover while firing from the left and right sides of the barricade in standing, kneeling, and prone positions and while reloading. Use of the barricade for support is optional.

Yard line:	25
Total rounds:	12
Targets:	1
Load with:	6 rounds

Strings:	5
Position:	Standing, kneeling, and prone
Procedure:	String 1: Draw, assume a standing left barricade position, and fire 2 rounds within 5 seconds.
	String 2: Draw, assume a standing right barricade position, and fire 2 rounds within 5 seconds.
	String 3: Draw, assume a kneeling left barricade position, and fire 2 rounds. Reload, move to a kneeling right barricade position, and fire 2 more rounds.
	Time limit: Revolver: 15 seconds Semiautomatic: 12 seconds
	String 4: Draw, assume a prone position, and fire 2 rounds within 10 seconds.
	String 5: Same as Stage VI, String 4.

Stage VII

Technique: Immediate response to a lethal threat at a long distance while using the standing, kneeling, and prone barricade positions (right or left barricade positions at shooter's option).

Yard line:	50
Total rounds:	6
Targets:	1
Load with:	6 rounds
Strings:	3
Position:	Standing, kneeling, and prone
Procedure:	String 1: Draw, assume a standing barricade position (shooter option of left or right side), and fire 2 rounds within 8 seconds.
	String 2: Draw, assume kneeling barricade position (shooter option of left or right side), and fire 2 rounds within 10 seconds.
	String 3: Draw, assume a prone position, and fire 2 rounds within 12 seconds.

4. REDUCED LIGHTING HANDGUN QUALIFICATION COURSE.

24 Total Rounds 84 Points at 70% or 96 Points at 80%

Stage I

Technique: Target identification, marksmanship, and firearm manipulation while engaging a lethal threat at a short distance.

Lighting standard: Dim light

Yard line: 7

Total rounds: 12

Targets: 1

Load with: 6 rounds

Strings: 5

Position: Standing

Procedure:

String 1: Draw, fire 2 rounds within 5 seconds, and assume a low-ready position.

String 2: From the low ready, fire 2 rounds within 3 seconds.

String 3: Draw and fire 2 rounds. Reload and fire 2 more rounds.

Time limit: Revolver: 12 seconds
Semiautomatic: 10 seconds

String 4: Same as Stage I, String 1.

String 5: Same as Stage I, String 2.

Stage II

Technique: Use of the flashlight to enhance target identification and marksmanship while engaging a lethal threat at a short distance.

Lighting standard: Dark

Yard line: 7

Total rounds: 6

Targets: 1

Load with: 6 rounds

Strings: 3

Position: Standing

Procedure:

String 1: From the low ready with handgun and flashlight, fire 2 rounds within 4 seconds.

Strings 2, 3: Same as Stage II, String 1.

Stage III

Technique: Use of the flashlight to enhance target identification and marksmanship while engaging a lethal threat at a moderate distance.

Lighting standard: Dark
Yard line: 15
Total rounds: 6
Targets: 1
Load with: 6 rounds
Strings: 3
Position: Standing

Procedure: String 1: From the low ready with handgun and flashlight, fire 2 rounds within 5 seconds.

Strings 2, 3: Same as Stage III, String 1.

5. SECURITY POLICE OFFICER (SPO)-III DAY COMBINED HANDGUN QUALIFICATION COURSE.

58 Total Rounds 261 Points at 90%

This course evaluates an SPO-III's marksmanship and manipulation skills in both stationary and shooting-on-the-move environments. This course combines all aspects of the current Daylight Handgun Qualification Course (Section C, Chapter III) and the current Handgun Shooting-on-the-Move Qualification Course (Section C, Chapter VIII). The DOE Standard Target shall be used for all stages and scored in accordance with Section C, Appendix C-3.

Special instructions:

- a. All general instructions for firearms qualification courses in Section C, Chapter II shall apply.
- b. All draws shall be from a snapped or secured holster. Shooters shall start with their hands relaxed, hanging by their sides.
- c. Shooters shall decock double-action semiautomatics before holstering.
- d. All movement stages will begin with the shooter in the low-ready position and the handgun in a full-load configuration.
- e. It is the shooter's responsibility to manage his or her ammunition. Shooters will be given an opportunity at the beginning of each stage to "make ready." The shooter may then tactically reload with a full magazine at his or her discretion.

However, Stage VIII requires a mandatory lock-back; therefore, a 1-round magazine will be used.

- f. The kneeling position may incorporate support for the shooting hand, but at least one knee must touch the ground. Other positions may incorporate support for the shooting hand, as directed.
- g. Shooters, when required to fire from either the left or right side of the barricade, shall use it for cover and may use it for support. Shooters shall also use the barricade as cover when reloading.
- h. The rifle/submachine gun (SMG) will be carried by the shooters through the end of Stage IX, after which it will be racked at the direction of the instructors.
- i. Any rounds fired from a stationary position when they should have been fired on-the-move will be deducted at full value from the total score.
- j. SPO-III's firing this course for qualification shall wear the equipment required for duty during tactical response situations.
- k. Shooters shall wear an approved protective mask during Stage VII, VIII, and IX of this course.
- l. Targets will be scored at the completion of Stage IX (30 rounds) and Stage XII (28 rounds) in accordance with Section C, Appendix C-3.

NOTE: The SPO-III is required to fire the course while wearing an unloaded, slung rifle/SMG.

Stage I

Technique: Immediate response to a lethal threat at a short distance.

Yard line: 3
Total rounds: 4
Targets: 1
Load with: Full load
Strings: 2
Position: Stationary; standing

Procedure: String 1: Draw and fire 2 rounds center mass within 3 seconds.

String 2: Same as Stage I, String 1.

Stage II

Technique: Immediate response to a lethal threat at a short distance.

Yard line: 5
Total rounds: 6
Targets: 1
Load with: Full load
Strings: 2
Position: Stationary; standing

Procedure: String 1: Draw and fire 2 rounds center mass and 1 round to the head within 4 seconds.
String 2: Same as Stage II, String 1.

Stage III

Technique: Immediate response to a lethal threat at a moderate distance and commencement of fire from the low ready.

Yard line: 10
Total rounds: 2
Targets: 1
Load with: Full load
Strings: 1
Position: Stationary; standing

Procedure: String 1: Draw and fire 2 rounds center mass within 4 seconds.

Stage IV

Technique: Response to a lethal threat at a short distance while moving and commencement of fire from the low ready.

Yard line: Start at 7; move to 3
Total rounds: 4
Targets: 1
Load with: Full load
Strings: 3
Position: Moving

Procedure: String 1: From the low ready, while moving, fire 1 round to the head within 3 seconds.
Strings 2-4: Same as Stage IV, String 1.

Stage V

Technique: Response to a lethal threat at a short distance using only the strong hand while moving and commencement of fire from the low ready.

Yard line: Start at 7; move to 3
Total rounds: 4
Targets: 1
Load with: Full load
Strings: 2
Position: Moving

Procedure: String 1: From the low ready, while moving, fire 2 rounds, strong hand only, center mass within 3 seconds.

String 2: Same as Stage V, String 1.

Stage VI

Technique: Response to a lethal threat at a short distance using only the weak hand while moving and commencement of fire from the low ready.

Yard line: Start at 7; move to 3
Total rounds: 4
Targets: 1
Load with: Full load
Strings: 2
Position: Moving

Procedure: String 1: From the low ready, while moving, fire 2 rounds, weak hand only, center mass, within 4 seconds.

String 2: Same as Stage V, String 1.

Stage VII

Technique: Response to a lethal threat at a short distance while moving and commencement of fire from the low ready while wearing a protective mask.

Yard line: Start at 7; move to 3
Total rounds: 6
Targets: 1
Load with: Full load*
Strings: 2
Position: Moving; wearing a protective mask

Procedure: String 1: From the low ready, while moving, fire 2 rounds center mass and 1 round to the head within 4 seconds.

String 2: Same as Stage VII, String 1.

Stage VIII

Technique: Response to a lethal threat at a moderate to short distance while wearing a protective mask, moving, speed loading, and commencement of fire from the low ready.

Yard line: Start at 10; move to 2
Total rounds: 8 (2 magazines or speed loaders)
Targets: 1
Load with: 1-round chambered and a 1-round magazine inserted in the firearm (mandatory lock-back); carrying a fully loaded magazine
Strings: 2
Position: Moving

Procedure: String 1: From the low ready, while moving, fire 2 rounds center mass, reload, and fire 2 rounds center mass, while continuing to move within 7 seconds.
String 2: Same as Stage VIII, String 1.

Stage IX

Technique: Immediate response to a lethal threat at a moderate distance while wearing a protective mask.

Yard line: 10
Total rounds: 2
Targets: 1
Load with: Full load
Strings: 1
Position: Standing

Procedure: String 1: Draw, fire 2 rounds center mass within 4 seconds.

NOTE: Before continuing to next stage, the SPO-III must be required to un-sling the rifle/SMG and place the rifle/SMG in a rack or ground it in a safe location.

Stage X

Technique: Immediate and continuing response to a lethal threat at a moderate distance while speed loading and moving to a more advantageous position.

Yard line: 15
Total rounds: 8
Targets: 1
Load with: Full load
Strings: 2
Position: Stationary; standing and kneeling

CHAPTER IV - RIFLE QUALIFICATION COURSES

1. INTRODUCTION. The courses of fire for the rifle evaluate shooters' marksmanship and firearm manipulation under daylight and reduced lighting conditions. The Department of Energy (DOE) Standard Target must be used for all stages and scored in accordance with Section C, Appendix C-3. Lighting standards for the Reduced Lighting Rifle Qualification Course are specified in Section C, Appendix C-1 and must be followed strictly whenever a shooter is to be qualified.
2. INSTRUCTIONS FOR RIFLE QUALIFICATION COURSES.
 - a. All general instructions for firearms qualification courses in Section C, Chapter II apply.
 - b. Rifle slings may be used, but must remain loose until the command to commence firing for each string of fire (e.g., a hasty sling may be adopted after the command to commence firing).
 - c. Carbines authorized for duty may include 9mm, .45 caliber, and other bore sizing designed to fire handgun cartridges.
 - d. Security Police Officers (SPOs) armed for duty with a rifle or carbine capable of firing in the semiautomatic, full-automatic, or 3-round burst mode must fire a qualification course for each setting.
 - e. All strings must start from the standing low-ready position, half-load configuration, and with the selector lever in the safe position unless specified otherwise.
 - f. Shooters must place the selector lever to the safe position after every string.
3. DAYLIGHT SEMIAUTOMATIC RIFLE QUALIFICATION COURSE.

30 Total Rounds 105 Points at 70% or 120 Points at 80%

Stage I

Technique: Immediate response to a lethal threat at a moderate distance.

Yard line: 15
Total rounds: 6
Targets: 1
Load with: 1 magazine
Strings: 3
Position: Standing

Procedure: String 1: Charge and fire 2 rounds within 4 seconds.

String 2: Full-load configuration, fire 2 rounds within 3 seconds.

String 3: Same as Stage I, String 2.

Stage II

Technique: Immediate response to a lethal threat at a moderate distance.

Yard line: 25
Total rounds: 6
Targets: 1
Load with: 1 magazine
Strings: 3
Position: Standing

Procedure: String 1: Charge and fire 2 rounds within 5 seconds.

String 2: Full-load configuration, fire 2 rounds within 3 seconds.

String 3: Same as Stage II, String 2.

Stage III

Technique: Immediate response to a lethal threat at a moderate distance while moving to a more advantageous shooting position.

Yard line: 25
Total rounds: 6
Targets: 1
Load with: 1 magazine
Strings: 3
Position: Standing to kneeling

Procedure: String 1: From standing, assume a kneeling position while charging, and fire 2 rounds within 7 seconds.

String 2: From standing, full-load configuration, assume a kneeling position, and fire 2 rounds within 5 seconds.

String 3: Same as Stage III, String 2.

Stage IV

Technique: Immediate response to a lethal threat at a long distance while moving to a more advantageous shooting position.

Yard line: 50
Total rounds: 4
Targets: 1
Load with: 1 magazine
Strings: 2
Position: Standing to kneeling

Procedure: String 1: From standing, assume a kneeling position while charging, and fire 2 rounds within 9 seconds.
String 2: From standing, full-load configuration, assume a kneeling position, and fire 2 rounds within 7 seconds.

Stage V

Technique: Immediate and continuing response to a lethal threat at a long distance while moving to a more advantageous shooting position and reloading.

Yard line: 50
Total rounds: 4 (2 magazines, 2 rounds each)
Targets: 1
Load with: 1 magazine, 2 rounds
Strings: 1
Position: Standing to prone

Procedure: String 1: From standing, assume the prone position while charging, and fire 2 rounds. Reload and fire 2 rounds within 20 seconds.

Stage VI

Technique: Immediate and continuing response to a lethal threat at a long distance while moving to a more advantageous shooting position and reloading.

Yard line: 100
Total rounds: 4 (2 magazines, 2 rounds each)
Targets: 1
Load with: 1 magazine, 2 rounds
Strings: 1
Position: Standing to prone

Procedure: String 1: From standing, assume the prone position while charging, and fire 2 rounds. Reload and fire 2 rounds within 25 seconds.

4. DAYLIGHT SPO-III COMBINED RIFLE/SMG QUALIFICATION COURSE.

84 Total Rounds 378 Points at 90%

NOTE: This course is to evaluate an SPO-III's marksmanship and manipulation skills in both stationary and shooting on the move environments. This course combines all aspects of the current Daylight Rifle/Submachine Gun (SMG) Qualification Course (Section C, Chapter VI) and the current SMG Shooting-on-the-Move Qualification Course (Section C, Chapter VIII). The DOE Standard Target shall be used for all stages and scored in accordance with Section C, Appendix C-3. A minimum score of 90 percent is required for qualification.

This course is designed to address the skills necessary for SPO-III personnel in a variety of situations, from response to close quarters battle (CQB). In the event that a site has chosen to equip its Special Response Team (SRT) with a rifle with full and/or semiautomatic fire capabilities instead of a SMG for CQB operations, this Qualification Course must still be used to assess the shooters' skills. When such rifles are capable of semiautomatic fire only, the applicable procedure for Stages I, III, IV, V, and VI must be utilized semiautomatic only. The required scoring percentages must be maintained.

Special instructions:

- a. The rifle/SMG must be in the full-load configuration, in a low-ready position, and with the selector lever in the safe position at the beginning of each stage.
- b. Shooters must manipulate the selector lever to the appropriate firing position at the beginning of each stage.
- c. Shooters must place the selector lever in the safe position after every stage.
- d. Shooters must use the rifle/SMG sling for each string, with the weak hand gripping the hand guard inside the sling.
- e. The handgun will be secured in the holster in a full-load condition as stipulated by site-specific duty requirements.
- f. SPO-III's firing this course for qualification shall wear the equipment required for duty during tactical response situations.
- g. Shooters must wear an approved protective mask during Stages V, VI, and VII of this course.
- h. Any rounds fired from a stationary position when they should have been fired on-the-move will be deducted at full value from the total score.

- i. In the event that site specific firearms allow for semiautomatic fire only, stages requiring automatic fire may be fired on semiautomatic. In such cases when a 2 round burst is required, 1 shot will be fired on semi-auto and the number of rounds required for each auto stage will be adjusted accordingly. However, the minimum qualification score will be no less than 90 percent of the maximum score.
- j. Targets will be scored at the completion of Stage IV (36 rounds on automatic, or 22 rounds on semiautomatic) and Stage XI (48 rounds on automatic or 38 rounds on semiautomatic).

Stage I

Technique: Immediate response to a lethal threat at a short distance using controlled bursts of fire in the automatic mode.

Yard line: 5
Total rounds: 12
Targets: 1
Load with: Full load
Strings: 2
Position: Stationary; standing

Procedure: String 1: Manipulate the selector lever to the automatic mode, fire two 2-round bursts center mass followed by one 2-round burst to the head within 3 seconds.
String 2: Same as Stage I, String 1.

Stage II

Technique: Response to a lethal threat at a short distance while moving and firing in the semiautomatic mode.

Yard line: Start at 7; move to 3
Total rounds: 2
Targets: 1
Load with: Full load
Strings: 2
Position: Moving

Procedure: String 1: Manipulate the selector lever to the semiautomatic mode, move while firing 1 round to the head within 3 seconds.
String 2: Same as Stage II, String 1.

Stage III

Technique: Response to a lethal threat at a short distance, while moving, and using controlled bursts of fire in the automatic mode.

Yard line: Start at 7; move to 3
Total rounds: 12
Load with: Full load
Strings: 2
Position: Moving

Procedure: String 1: Manipulate the selector lever to the automatic mode, move while firing two 2-round bursts center mass and one 2-round burst to the head within 4 seconds.

String 2: Same as Stage III, String 1.

Stage IV

Technique: Response to a lethal threat at a moderate to short distance while moving and using controlled bursts of fire in the semi/automatic mode. Transition from the rifle/SMG to the handgun.

Yard line: Start at 10; move to 2
Total rounds: 10
Targets: 1
Load with: Rifle/SMG – Full load with 2 rounds (1 in chamber, 1 in magazine)
Handgun – Full load
Strings: 2
Position: Moving

Procedure: String 1: Manipulate the rifle/SMG selector lever to the automatic mode and have the handgun holstered. Move while firing one 2-round burst to center mass, attempt to fire a second 2-round burst to center mass, transition to the handgun, and fire 2 rounds to center mass and 1 round to the head within 8 seconds.

String 2: Same as Stage IV, String 1.

Stage V

Technique: Response to a lethal threat at a short distance while moving and using controlled bursts of fire in the automatic mode while wearing a protective mask.

Yard line: Start at 7; move to 3
Total rounds: 12
Load with: Full load
Strings: 2
Position: Moving; wearing a protective mask.

Procedure: String 1: Manipulate the selector lever to the automatic mode, move while firing two 2-round bursts to center mass and one 2-round burst to the head within 4 seconds.
String 2: Same as Stage V, String 1.

Stage VI

Technique: Response to a lethal threat at a moderate to short distance while moving and using controlled bursts of fire in the automatic mode while wearing a protective mask.

Yard line: Start at 10; move to 5
Total rounds: 8
Targets: 1
Load with: Full load
Strings: 2
Position: Moving; wearing a protective mask

Procedure: String 1: Manipulate the selector lever to the automatic mode, move while firing two 2-round bursts to center mass within 4 seconds.
String 2: Same as Stage VI, String 1.

Stage VII

Technique: Immediate response to a lethal threat at a moderate distance while firing on semiautomatic mode and wearing a protective mask.

Yard line: 10
Total rounds: 4
Targets: 1
Load with: Full load
Strings: 2
Position: Stationary; standing and wearing a protective mask.

- Procedure: String 1: Manipulate the selector lever to the semiautomatic mode, fire 2 rounds center mass within 3 seconds.
- String 2: Same as Stage VII, String 1.

Stage VIII

Technique: Immediate response to a lethal threat at a moderate distance while moving to a more advantageous shooting position and firing in the semiautomatic mode.

- Yard line: 15
Total rounds: 4
Targets: 1
Load with: Full load
Strings: 2
Position: Stationary; standing to kneeling.

- Procedure: String 1: Begin in the standing position and manipulate the selector lever to the semiautomatic mode, assume a kneeling position, and fire 2 rounds center mass within 4 seconds.
- String 2: Same as Stage VIII, String 1.

Stage IX

Technique: Immediate and continuing response to a lethal threat at a moderate distance while reloading and moving to a more advantageous position and firing in the semiautomatic mode.

- Yard line: 25
Total rounds: 8
Targets: 1
Load with: Full load
Strings: 2
Position: Stationary; standing and kneeling

- Procedure: String 1: Begin in the standing position, manipulate the selector lever to the semiautomatic mode, fire 2 rounds center mass, speed reload, move to a kneeling position, and fire 2 rounds center mass within 12 seconds.
- String 2: Same as Stage IX, String 1.

Stage X

Technique: Immediate response to a lethal threat at a long distance in the semiautomatic mode firing from a kneeling barricade and prone position.

Yard line: 50
Total rounds: 8
Targets: 1
Load with: Full load
Strings: 4
Position: Stationary; kneeling barricade and prone

Procedure: String 1: Begin in the standing position, manipulate the selector lever to the semiautomatic mode, move to a kneeling barricade position, and fire 2 rounds center mass within 6 seconds.

NOTE: The barricade will be used for cover and may be used for support in the kneeling position. Right-handed shooters will fire from the right side barricade, and left-handed shooters will fire from the left side barricade.

String 2: Same as Stage X, String 1.

String 3: Begin in the standing position with the selector lever set on semiautomatic mode, move to a prone position, and fire 2 rounds center mass within 8 seconds.

String 4: Same as Stage X, String 3.

Stage XI

Technique: Immediate and continual response to a lethal threat at a long distance, while moving to a more advantageous shooting position, shooting in the semiautomatic mode, and reloading.

Yard line: 100
Total rounds: 4
Targets: 1
Load with: Full load
Strings: 1
Position: Stationary; prone

Procedure: String 1: Begin in the standing position, manipulate the selector lever to the semiautomatic mode, move to a prone position, and fire 2 rounds center mass. Reload and fire 2 rounds center mass within 20 seconds.

5. REDUCED LIGHTING SEMIAUTOMATIC RIFLE QUALIFICATION COURSE.

20 Total Rounds 70 Points at 70% or 80 Points at 80%

Stage I

Technique: Immediate and continual response to a lethal threat at a short distance.

Lighting standard: Dim light

Yard line: 7

Total rounds: 8 (2 magazines, 4 rounds each)

Targets: 1

Load with: 1 magazine

Strings: 3

Position: Standing

Procedure:

- String 1: Charge and fire 2 rounds within 4 seconds.
- String 2: Full-load configuration, fire 2 rounds. Reload and fire 2 rounds within 15 seconds.
- String 3: Full-load configuration, fire 2 rounds within 4 seconds.

Stage II

Technique: Immediate response to a lethal threat at a moderate distance while moving to a more advantageous shooting position.

Lighting standard: Dim light

NOTE: When conducting Stage II, if the rifle is equipped with an illuminating device, the stage must be fired under the Dark Light Standard while using the illuminating device.

Yard line: 15

Total rounds: 6

Targets: 1

Load with: 1 magazine

Strings: 3

Position: Standing to kneeling

Procedure:

- String 1: From standing, assume a kneeling position while charging, and fire 2 rounds within 7 seconds.
- String 2: From standing, full-load configuration, assume a kneeling position, and fire 2 rounds within 5 seconds.
- String 3: Same as Stage II, String 2.

Stage III

Technique: Immediate response to a lethal threat at a moderate distance while moving to a more advantageous shooting position.

Lighting standard: Dim light
Yard line: 25
Total rounds: 6
Targets: 1
Load with: 1 magazine
Strings: 3
Positions: Standing to prone

Procedure: String 1: From standing, assume a prone position, while charging, and fire 2 rounds within 9 seconds.
String 2: From standing, full-load configuration, assume a prone position, and fire 2 rounds within 7 seconds.
String 3: Same as Stage III, String 2.

6. AUTOMATIC RIFLE QUALIFICATION COURSES.

a. Daylight 3-Round-Burst Qualification Course.

30 Total Rounds 105 Points at 70% or 120 Points at 80%

Stage I

Technique: Immediate response to a lethal threat at a short distance using a controlled burst of fire.

Yard line: 5
Total rounds: 6
Targets: 1
Load with: 1 magazine
Strings: 2
Position: Standing

Procedure: String 1: Charge and fire one 3-round burst within 4 seconds.
String 2: Full-load configuration, fire one 3-round burst within 3 seconds.

Stage II

Technique: Immediate response to a lethal threat at a short distance using controlled bursts of fire.

Yard line: 5
Total rounds: 12
Targets: 1
Load with: 1 magazine
Strings: 2
Position: Standing

Procedure: String 1: Charge and fire two 3-round bursts within 5 seconds.
String 2: Full-load configuration, fire two 3-round bursts within 4 seconds.

Stage III

Technique: Immediate response to a lethal threat at a short distance using a controlled burst of fire.

Yard line: 7
Total rounds: 6
Targets: 1
Load with: 1 magazine
Strings: 2
Position: Standing

Procedure: String 1: Charge and fire one 3-round burst within 4 seconds.
String 2: Full-load configuration, fire one 3-round burst within 3 seconds.

Stage IV

Technique: Immediate response to a lethal threat at a moderate distance using a controlled burst of fire.

Yard line: 10
Total rounds: 6
Targets: 1
Load with: 1 magazine
Strings: 2
Position: Standing

Procedure: String 1: Charge and fire one 3-round burst within 4 seconds.
String 2: Full-load configuration, fire one 3-round burst within 3 seconds.

b. Reduced Lighting 3-Round-Burst Qualification Course.

24 Total Rounds 84 Points at 70% or 96 Points at 80%

Stage I

Technique: Immediate response to a lethal threat at a short distance using a controlled burst of fire.

Lighting standard: Dim light
Yard line: 5
Total rounds: 6
Targets: 1
Load with: 1 magazine
Strings: 2
Position: Standing

Procedure: String 1: Charge and fire one 3-round burst within 4 seconds.

 String 2: Full-load configuration, fire one 3-round burst within 3 seconds.

Stage II

Technique: Immediate response to a lethal threat at a short distance using controlled bursts of fire.

Lighting standard: Dim light
Yard line: 5
Total rounds: 6
Targets: 1
Load with: 1 magazine
Strings: 1
Position: Standing

Procedure: String 1: Charge and fire two 3-round bursts within 5 seconds.

Stage III

Technique: Immediate response to a lethal threat at a short distance using a controlled burst of fire.

Lighting standard: Dim light
Yard line: 7
Total rounds: 6
Targets: 1

Load with: 1 magazine
Strings: 2
Position: Standing

Procedure: String 1: Charge and fire one 3-round burst within 4 seconds.
String 2: Full-load configuration, fire one 3-round burst within 4 seconds.

Stage IV

Technique: Immediate response to a lethal threat at a moderate distance using a controlled burst of fire.

Lighting standard: Dim light

NOTE: When conducting Stage IV, if the rifle is equipped with an illuminating device, the stage must be fired under the Dark Light Standard while using the illuminating device.

Yard line: 10
Total rounds: 6
Targets: 1
Load with: 1 magazine
Strings: 2
Position: Standing

Procedure: String 1: Charge and fire one 3-round burst within 4 seconds.
String 2: Full-load configuration, fire one 3-round burst within 4 seconds.

c. Daylight Full-Automatic Qualification Course.

30 Total Rounds 105 Points at 70% or 120 Points at 80%

Stage I

Technique: Immediate response to a lethal threat at a short distance using controlled bursts of fire.

Yard line: 5
Total rounds: 12
Targets: 1
Load with: 1 magazine
Strings: 3
Position: Standing

- Procedure:
- String 1: Charge and fire two 2-round bursts within 5 seconds.
 - String 2: Full-load configuration, fire two 2-round bursts within 4 seconds.
 - String 3: Full-load configuration, fire two 2-round bursts within 4 seconds.

Stage II

Technique: Immediate response to a lethal threat at a short distance using controlled bursts of fire.

- Yard line: 7
- Total rounds: 12
- Targets: 1
- Load with: 1 magazine
- Strings: 3
- Position: Standing

- Procedure:
- String 1: Charge and fire two 2-round bursts within 5 seconds.
 - String 2: Full-load configuration, fire two 2-round bursts within 4 seconds.
 - String 3: Full-load configuration, fire two 2-round bursts within 4 seconds.

Stage III

Technique: Immediate response to a lethal threat at a moderate distance using a controlled burst of fire.

- Yard line: 10
- Total rounds: 6
- Targets: 1
- Load with: 1 magazine
- Strings: 3
- Position: Standing

- Procedure:
- String 1: Charge and fire one 2-round burst within 4 seconds.
 - String 2: Full-load configuration, fire one 2-round burst within 3 seconds.
 - String 3: Same as Stage III, String 2.

d. Reduced Lighting Full-Automatic Qualification Course.

24 Total Rounds 84 Points at 70% or 96 Points at 80%

Stage I

Technique: Immediate response to a lethal threat at a short distance using controlled bursts of fire.

Lighting standard: Dim light
Yard line: 5
Total rounds: 8
Targets: 1
Load with: 1 magazine
Strings: 2
Position: Standing

Procedure: String 1: Charge and fire two 2-round bursts within 5 seconds.

 String 2: Full-load configuration, fire two 2-round bursts within 4 seconds.

Stage II

Technique: Immediate response to a lethal threat at a short distance using controlled bursts of fire.

Lighting standard: Dim light
Yard line: 7
Total rounds: 8
Targets: 1
Load with: 1 magazine
Strings: 2
Position: Standing

Procedure: String 1: Charge and fire two 2-round bursts within 5 seconds.

 String 2: Full-load configuration, fire two 2-round bursts within 4 seconds.

Stage III

Technique: Immediate response to a lethal threat at a moderate distance using controlled bursts of fire.

Lighting standard: Dim light

NOTE: When conducting Stage III, if the rifle is equipped with an illuminating device, the stage must be fired under the Dark Light Standard while using the illuminating device.

Yard line: 10
Total rounds: 8
Targets: 1
Load with: 1 magazine
Strings: 2
Position: Standing

Procedure: String 1: Charge and fire two 2-round bursts within 5 seconds.

String 2: Full-load configuration, fire two 2-round bursts within 4 seconds.

CHAPTER V - SHOTGUN QUALIFICATION COURSES

1. INTRODUCTION. The shotgun qualification courses evaluate shooters' marksmanship and firearm manipulation under daylight and reduced lighting conditions and with different types of ammunition. The Department of Energy (DOE) Standard Target must be used for all stages and scored in accordance with Section C, Appendix C-3. Lighting standards for the Reduced Lighting Shotgun Qualification Course are specified in Section C, Appendix C-1 and must be followed strictly whenever a shooter will be qualified.

2. INSTRUCTIONS FOR SHOTGUN QUALIFICATION COURSES.
 - a. All general instructions for firearms qualification courses in Section C, Chapter II apply.
 - b. The chamber must be empty, the action closed, and the safety on at the beginning of each stage.
 - c. The action must be closed and the safety on before loading at the beginning of each stage.
 - d. Shooters must begin each string standing with the shotgun at the low ready.
 - e. Shooters must move the safety to the "on" position at the end of each string.

3. DAYLIGHT SHOTGUN QUALIFICATION COURSE.

10 Total Rounds If 9 pellets per round 63 Points at 70% or 72 Points at 80%
 If 12 pellets per round 84 Points at 70% or 96 Points at 80%

Stage I

Technique: Immediate and continuing response to a lethal threat at a short distance while reloading.

Yard line: 7
Total rounds: 4
Targets: 1
Load with: 3 rounds in the magazine tube
Strings: 1
Position: Standing

Procedure: String 1: Charge and fire 2 rounds. Load 1 round in the magazine tube, and fire 2 rounds within 12 seconds.

Stage II

Technique: Immediate and continual response to a lethal threat at a moderate distance, while changing shooting position and reloading, using an alternate method to load.

Yard line: 15
Total rounds: 4
Targets: 1
Load with: 2 rounds in the magazine tube
Strings: 1
Position: Standing to kneeling

Procedure: String 1: Charge, and fire 2 rounds from a standing position. While assuming the kneeling position, load 1 round through the ejection port and close the action, load 1 round in the magazine tube, and fire 2 rounds within 15 seconds.

Stage III

Technique: Immediate response to a lethal threat at a moderate distance while moving to a more advantageous shooting position.

Yard line: 25
Total rounds: 2
Targets: 1
Load with: 2 rounds in the magazine tube
Strings: 1
Position: Standing to kneeling

Procedure: String 1: Charge and fire 1 round from a standing position; kneel and fire 1 round within 6 seconds.

4. REDUCED LIGHTING SHOTGUN QUALIFICATION COURSE.

10 Total Rounds If 9 pellets per round 63 Points at 70% or 72 Points at 80%
 If 12 pellets per round 84 Points at 70% or 96 Points at 80%

The Reduced Lighting Shotgun Qualification Course is fired using the Dim Light Standard. It consists of three stages that are identical to the Daylight Shotgun Qualification Course.

NOTE: When conducting Stage I, if the shotgun is equipped with an illuminating device, the stage must be fired under the Dark Light Standard while using the illuminating device.

5. SHOTGUN SLUG QUALIFICATION COURSE.

5 Total Rounds 3 Points at 70% or 4 Points at 80%

Stage I

Technique: Immediate response to a lethal threat at a moderate distance while moving to a more advantageous shooting position.

Yard line: 35
Total rounds: 3
Targets: 1
Load with: 3 rounds in the magazine tube
Strings: 2
Position: Standing to kneeling

Procedure: String 1: From a low-ready position while standing, charge and fire 1 round within 5 seconds.

 String 2: From the low ready, assume a kneeling position while charging, and fire 2 rounds within 7 seconds.

Stage II

Technique: Immediate response to a lethal threat at a long distance while moving to a more advantageous shooting position.

Yard line: 50
Total rounds: 2
Targets: 1
Load with: 2 rounds in the magazine tube
Strings: 1
Position: Standing to kneeling

Procedure: String 1: From the low ready, assume a kneeling position while charging and fire 2 rounds within 9 seconds.

CHAPTER VI - SUBMACHINE GUN QUALIFICATION COURSES

1. INTRODUCTION. The Sub Machine Gun (SMG) courses evaluate shooters' marksmanship and firearm manipulation under daylight and reduced lighting conditions. The Department of Energy (DOE) Standard Target must be used for all stages and scored in accordance with Section C, Appendix C-3. The lighting standards for the Reduced Lighting SMG Qualification Course specified in Section C, Appendix C-1 must be followed strictly whenever a shooter is to be qualified.

NOTE: The courses address the skills necessary for CQB situations. Sites that have chosen semi- and/or full-automatic rifles for close quarters battle (CQB) situations must use this course to assess shooters' skills. When such rifles are capable of semiautomatic fire only, strings of fire (e.g., one round to replace the 2-round burst) and scoring must be modified appropriately, where indicated. Required SMG qualification scoring percentages must be maintained.

2. INSTRUCTIONS FOR SUBMACHINE GUN QUALIFICATION COURSES.
 - a. All general instructions for firearms qualification courses in Section C, Chapter II apply.
 - b. The SMG must be at full-load, at the low ready, and with the selector lever in the safe position at the beginning of each string.
 - c. Shooters must use the SMG sling for each string with the weak hand gripping the forearm inside the sling.
 - d. Shooters must place the selector lever in the safe position after every stage.
3. DAYLIGHT SUBMACHINE GUN QUALIFICATION COURSE.

60 Total Rounds 210 Points at 70% or 240 at 80%

Stage I

Technique: Immediate response to a lethal threat at a short distance using controlled bursts of fire in the automatic mode.

Yard line: 3
Total rounds: 8
Targets: 1
Load with: 1 magazine
Strings: 2
Position: Standing

Procedure: String 1: Manipulate the selector lever to automatic, and fire two 2-round bursts within 2 seconds.

String 2: Same as Stage I, String 1.

Stage II

Technique: Immediate response to a lethal threat at a short distance using controlled bursts of fire in the automatic mode.

Yard line: 5
Total rounds: 12
Targets: 1
Load with: 1 magazine
Strings: 2
Position: Standing

Procedure: String 1: Manipulate the selector lever to automatic, fire two 2-round bursts center of mass, followed by a 2-round burst to the head within 3 seconds.

String 2: Same as Stage II, String 1.

Stage III

Technique: Immediate response to a lethal threat at a short distance using controlled bursts of fire in the semiautomatic mode.

Yard line: 5
Total rounds: 6
Targets: 1
Load with: 1 magazine
Strings: 2
Position: Standing

Procedure: String 1: Manipulate the selector lever to semiautomatic, fire 2 rounds center of mass and 1 round to the head within 3 seconds.

String 2: Same as Stage III, String I.

Stage IV

Technique: Immediate response to a lethal threat at a short distance using controlled bursts of fire in the automatic mode and continuing to fire after reloading.

Yard line: 7
Total rounds: 8 (2 magazines, 4 rounds each)
Targets: 1
Load with: 1 magazine
String: 1
Position: Standing

Procedure: String 1: Manipulate the selector lever to automatic, fire two 2-round bursts, reload, and fire two 2-round bursts within 10 seconds.

Stage V

Technique: Immediate response to a lethal threat at a short distance using controlled bursts of fire in the semiautomatic mode.

Yard line: 7
Total rounds: 4
Targets: 1
Load with: 1 magazine
Strings: 2
Position: Standing

Procedure: String 1: Manipulate the selector lever to semiautomatic, and fire 2 rounds within 2 seconds.
String 2: Same as Stage V, String 1

Stage VI

Technique: Immediate response to a lethal threat at a moderate distance using controlled bursts of fire in the automatic mode.

Yard line: 10
Total rounds: 8
Targets: 1
Load with: 1 magazine
Strings: 2
Position: Standing

Procedure: String 1: Manipulate the selector lever to automatic, and fire two 2-round bursts within 3 seconds.
String 2: Same as Stage VI, String 1.

Stage VII

Technique: Immediate response to a lethal threat at a moderate distance using the semiautomatic mode.

Yard line: 15
Total rounds: 6
Targets: 1
Load with: 1 magazine
Strings: 6
Position: Standing

Lighting standard: Dim light
Yard line: 5
Total rounds: 6
Targets: 1
Load with: 1 magazine
Strings: 1
Position: Standing

Procedure: String 1: Manipulate the selector lever to automatic, fire two 2-round bursts center of mass, followed by a 2-round burst to the head within 3 seconds.

Stage II

Technique: Immediate response to a lethal threat at a short distance using the semiautomatic mode.

Lighting standard: Dim light

NOTE: When conducting Stage II, if the SMG is equipped with an illuminating device, the stage must be fired under the Dark Light Standard while using the illuminating device.

Yard line: 5
Total rounds: 6
Targets: 1
Load with: 1 magazine
Strings: 2
Position: Standing

Procedure: String 1: Manipulate the selector lever to semiautomatic, fire 2 rounds center of mass and 1 round to the head within 3 seconds.

String 2: Same as Stage II, String 1.

Stage III

Technique: Immediate response to a lethal threat at a short distance using the semiautomatic mode and continuing to fire after reloading.

Lighting standard: Dim light
Yard line: 7
Total rounds: 4 (2 magazines, 2 rounds in each)
Targets: 1
Load with: 1 magazine
Strings: 1
Position: Standing

Procedure: String 1: Manipulate the selector lever to semiautomatic, fire 2 rounds, reload, and fire 2 rounds within 10 seconds.

Stage IV

Technique: Immediate response to a lethal threat at a short distance using the semiautomatic mode.

Lighting standard: Dim light

NOTE: When conducting Stage IV, if the SMG is equipped with an illuminating device, the stage must be fired under the Dark Light Standard while using the illuminating device.

Yard line: 7
Total rounds: 4
Targets: 1
Load with: 1 magazine
Strings: 2
Position: Standing

Procedure: String 1: Manipulate the selector lever to semiautomatic, and fire 2 rounds within 2 seconds.
String 2: Same as Stage IV, String 1.

Stage V

Technique: Immediate response to a lethal threat at a moderate distance, while moving to a more advantageous shooting position, using the semiautomatic mode.

Lighting standard: Dim light
Yard line: 15
Total rounds: 6
Targets: 1
Load with: 1 magazine
Strings: 3
Position: Standing to kneeling

Procedure: String 1: Begin standing, manipulate the selector lever to semiautomatic, kneel, and fire 2 rounds within 4 seconds.
Strings 2, 3: Same as Stage V, String 1.

Stage VI

Technique: Immediate response to a lethal threat at a moderate distance, while moving to a more advantageous shooting position, using the semiautomatic mode.

Lighting standard: Dim light
Yard line: 25
Total rounds: 4
Targets: 1
Load with: 1 magazine
Strings: 2
Position: Standing to prone

Procedure: String 1: Begin standing, manipulate with selector lever to semiautomatic, assume a prone position, and fire 2 rounds within 6 seconds.

String 2: Same as Stage VI, String 1.

CHAPTER VII - LIGHT MACHINE GUN QUALIFICATION COURSES

1. **INTRODUCTION.** Courses for the light machine gun (LMG) evaluate and test a gunner's marksmanship and firearm manipulation under daylight conditions for the authorized LMG, which has been assigned to that gunner. Distances must be measured in meters. Standard Military 10-meter Targets must be used for all stages and scored in accordance with Section C, Appendix C-3.

2. **INSTRUCTIONS FOR LIGHT MACHINE GUN QUALIFICATION COURSES.**
 - a. All general instructions for firearms qualification courses in Section C, Chapter II apply.

 - b. Firearms instructors must ensure gunners achieve a correct half-load condition during stages requiring that condition.

 - c. A malfunctioning LMG must be replaced immediately if it is apparent that general malfunction clearing procedures will not remedy the problem.

 - d. On M-60s, the gunner must ease the bolt forward during assembly, disassembly, and function check to prevent damage to the feed tray assembly and operating-rod assembly. A gunner must not close the feed tray cover with the bolt forward to avoid damage to parts of the feed tray cover and the bolt.

 - e. On Heckler and Koch (HK) LMGs, the gunner must perform the function check without an ammunition box mounted.

 - f. On HKs in the half-load configuration, the gunner must ensure a round is present over the cartridge feed lever before closing the belt-feed unit.

 - g. For both the M-60 and the HK, a gunner must qualify in the LMG Manipulation Qualification Course before being allowed to fire the LMG Qualification Course.

3. **FULL-AUTOMATIC LIGHT MACHINE GUN QUALIFICATION COURSES.**

- a. M-60 Manipulation Qualification Course.

41 Total Rounds Manipulation Test only no firing for points
(including one
dummy round)

Stage I

Technique: Clear the M-60 following procedures.

Meter line: 10
Total rounds: 0

Targets: 0
Load with: 0
Strings: 0
Position: Prone

M-60 condition: Cleared with the selector lever in the safe position, the bolt forward, and the feed tray cover closed.

Procedure: The gunner must do the following, in order, without a time limit:

- (1) ensure the selector lever is in the safe position;
- (2) raise the feed tray cover and feed tray simultaneously; inspect/remove links or ammunition;
- (3) move the selector lever to the fire position;
- (4) pull the cocking handle to the rear, with the palm facing up, to lock the bolt in its rear position. Return the cocking handle to the forward position and move the selector lever to the safe position;
- (5) check the feed tray, receiver group, and chamber to ensure they are clear;
- (6) lower the feed tray and close the feed tray cover, move selector lever to the fire position, pull the cocking handle to the rear, and pull the trigger while manually easing the bolt forward; and
- (7) move the selector lever to the safe position.

Stage II

Technique: Conduct an M-60 function check following procedures.

Meter line: 10
Total rounds: 0
Targets: 0
Load with: 0
Strings: 0
Position: Prone

M-60 condition: Cleared with the selector lever in the safe position, the bolt forward, and the feed tray cover closed.

Procedure: The gunner must do the following in order without a time limit:

- (1) move the selector to the fire position;
- (2) pull the cocking handle to the rear, with the palm facing up, to lock the bolt in its rear position, and return the cocking handle to the forward position;
- (3) move the selector lever to the safe position;
- (4) while holding the cocking handle to the rear, pull the trigger (should not fire);
- (5) move the selector lever to the fire position;
- (6) while holding the cocking handle, pull the trigger and manually ease the bolt forward; and
- (7) move the selector lever to the safe position.

Stage III

Technique: Load and zero the M-60 following procedures.

Meter line: 10
Total rounds: 6
Targets: 2
Load with: 1 round
Strings: 1
Position: Prone
M-60 condition: Cleared with the selector lever in the safe position, the bolt forward, and the feed tray cover closed.

Procedure: The gunner must do the following, in order, without time limit:

- (1) set the rear sight at 500 m and zero windage;
- (2) load 1 round;
- (3) position the body and grip the M-60 for firing;
- (4) obtain sight alignment and sight picture; fire 1 round on target A1;
- (5) repeat steps (2), (3), and (4) for each round fired;
- (6) locate the center of the shot group;

- (7) calculate and apply sight corrections;
- (8) fire 1 round on target A1;
- (9) calculate and apply sight corrections;
- (10) fire 1 round on target A1;
- (11) calculate and apply sight corrections;
- (12) fire 1 confirming round on target A2;
- (13) adjust range plate scale to read 500 m;
- (14) raise the feed tray cover and feed tray simultaneously; and
- (15) clear.

Stage IV

Technique: Load the M-60 and engage a specified target.

Meter line: 10

Total rounds: 6

Targets: 1

Load with: 6 rounds

Strings: 1

Position: Prone

M-60 condition: Cleared and zeroed with the selector lever in the safe position, the bolt forward, and the feed tray cover closed.

Procedure: The gunner must do the following, in order, without a time limit:

- (1) move the selector lever to the fire position;
- (2) pull the cocking handle to the rear, with the palm facing up, to lock the bolt in its rear position, and return the cocking handle to the forward position;
- (3) move the selector lever to the safe position;
- (4) raise the feed tray cover and feed tray simultaneously. Ensure that the feed tray, receiver group, and chamber are clear;
- (5) place the first round of belt in the feed tray groove, double link leading and the open side of links down;

- (6) ensure that the first round remains in the tray groove, lower the feed tray, and close the feed tray cover while holding the belt up, approximately 6 rounds from the loading end;
- (7) move the selector lever to the fire position;
- (8) engage target A3 with a 6-round burst achieving at least 2 hits;
- (9) raise the feed tray cover and the feed tray simultaneously; and
- (10) clear.

Stage V

Technique: Load the M-60 to a half-load condition and manipulate to a full load before engaging a specified target.

Meter line: 10
Total rounds: 6
Targets: 1
Load with: 6 rounds
Strings: 1
Position: Prone
M-60 condition: Half loaded and zeroed with the selector lever in the safe position, the bolt forward, and the feed tray cover closed.

Procedure: The gunner must do the following, in order, without a time limit:

- (1) bring to a full load;
- (2) engage target A4 with a 6-round burst, achieving at least 2 hits;
- (3) raise the feed tray cover and feed tray simultaneously; and
- (4) clear.

Stage VI

Technique: Load the M-60 to a full load and reload while engaging specified targets.

Meter line: 10
Total rounds: 12 (two 6-round belts)
Targets: 2
Load with: 6 rounds
Strings: 1

- Position: Prone
M-60 condition: Cleared and zeroed with the selector lever in the safe position, the bolt forward, and the feed tray cover open.
- Procedure: The gunner must do the following, in order, without a time limit:
- (1) full load with one 6-round belt;
 - (2) engage target A5 with a 6-round burst achieving at least 2 hits;
 - (3) reload;
 - (4) engage target A6 with a 6-round burst achieving at least 2 hits;
 - (5) raise the feed tray cover and feed tray simultaneously; and
 - (6) clear.

Stage VII

Technique: Load the M-60 to a half-load condition, manipulate to a full load, and apply immediate action while engaging specified targets.

- Meter line: 10
Total rounds: 12 plus 1 dummy round
Targets: 2
Load with: 12 plus 1 dummy round placed between the 4th and 8th round
Strings: 1
Position: Prone
M-60 condition: Half loaded and zeroed with the selector lever in the safe position.

- Procedure: The gunner must do the following, in order, without a time limit:
- (1) bring to a full load;
 - (2) engage target A7 with a 6-round burst and target A8 with a 6-round burst achieving at least two hits per target;
 - (3) complete immediate action within 10 seconds when required;
 - (4) raise the feed tray cover and feed tray simultaneously; and
 - (5) clear.

b. M-60 Qualification Course.

49 Total Rounds 168 Points at 70% or 192 Points at 80%
(including one
dummy round)

Stage I

Technique: Clear the M-60 following procedures.

Meter line: 10

Total rounds: 0

Targets: 0

Load with: 0

Strings: 0

Position: Prone

M-60 condition: Cleared with the selector lever in the safe position, the bolt forward, and the feed tray cover closed.

Procedure: Within 40 seconds, the gunner must do the following, in order:

- (1) ensure the selector lever is in the safe position;
- (2) raise the feed tray cover and feed tray simultaneously; inspect/remove links or ammunition;
- (3) move the selector lever to the fire position;
- (4) pull the cocking handle to the rear, with the palm facing up, to lock the bolt in its rear position, return the cocking handle to the forward position, and move the selector lever to the safe position;
- (5) check the feed tray, receiver group, and chamber to ensure they are clear;
- (6) close the feed tray cover, move the selector lever to the fire position, pull the locking handle to the rear, and pull the trigger while manually easing the bolt forward; and
- (7) move the selector lever to the safe position.

Stage II

Technique: Conduct an M-60 function check following procedures.

Meter line: 10

Total rounds: 0

- Targets: 0
Load with: 0
Strings: 0
Position: Prone
M-60 condition: Cleared with the selector lever in the safe position, the bolt forward, and the feed tray cover closed.
- Procedure: Within 40 seconds, the gunner must do the following, in order:
- (1) move the selector lever to the fire position;
 - (2) pull the cocking handle to the rear, with the palm facing up, to lock the bolt in its rear position, and return the cocking handle to the forward position;
 - (3) move the selector lever to the safe position;
 - (4) while holding the cocking handle to the rear, pull the trigger (should not fire);
 - (5) move the selector lever to the fire position;
 - (6) while holding the cocking handle, pull the trigger and ease the bolt forward manually; and
 - (7) move the selector lever to the safe position.

Stage III

Technique: Load the M-60 to a half-load condition, manipulate to a full load, reload, and apply immediate action while engaging specified targets.

- Meter line: 10
Total rounds: 48 plus 1 dummy round (2 belts: 1) a 24-round; and 2) a 25-round with dummy between 6th and 18th round)
Targets: 8
Load with: 24-round belt
Strings: 1
M-60 condition: Half loaded (24-round belt) and zeroed with the selector lever in the safe position.

- Procedure: Within 2 minutes, the gunner must do the following, in order:
- (1) bring to full load;
 - (2) engage targets B5, B6, B7, and B8 with one burst each, in any order;

- (3) reload with the 25-round belt;
- (4) engage targets B1, B2, B3, and B4 with one burst each, in any order;
- (5) complete immediate action within 10 seconds when required;
- (6) raise the feed tray cover and feed tray simultaneously;
- (7) clear;
- (8) each target must sustain at least 2 hits;
- (9) only 9 bursts may be fired (8 bursts with live rounds and 1 burst with a dummy round); and
- (10) time must stop at completion of burst 9.

4. SELECTIVE FIRE LIGHT MACHINE GUN QUALIFICATION COURSES.

a. HK Manipulation Qualification Course.

41 Total Rounds Manipulation Test only no firing for points
(including one
dummy round)

Stage I

Technique: Clear the HK 21/23E LMG.

Meter line: 10

Total rounds: 0

Targets: 0

Load with: 0

Strings: 0

Position: Prone

HK condition: Cleared with the selector lever in the safe position, the bolt forward, and the belt-feed unit closed.

Procedure: The gunner must do the following, in order, without a time limit:

- (1) ensure the selector lever is in the safe position;
- (2) swing down the belt-feed unit and visually ensure that no ammunition or spent links are in the belt-feed unit; and

- (3) lock the cocking handle to the rear and visually check for ammunition in the chamber.

Stage II

Technique: Conduct an HK function check following procedures.

Meter line: 10
Total rounds: 0
Targets: 0
Load with: 0
Strings: 0
Position: Prone
HK condition: Cleared with the selector lever in the safe position, the bolt forward, and the belt-feed unit closed.

Procedure: The gunner must do the following, in order, without a time limit:

- (1) ensure the firearm is clear, per Stage I;
- (2) check for unrestricted motion of the cocking lever;
- (3) cock;
- (4) with the selector lever in the safe position, pull the trigger (should not fire);
- (5) move the selector lever to semiautomatic; pull and hold the trigger to the rear (the hammer should fall);
- (6) keep the trigger to the rear and cock, release the trigger (the sear should audibly engage), and pull the trigger (the hammer should fall);
- (7) cock;
- (8) move the selector lever to the 3-round-burst position, pull the trigger, and hold to the rear (the hammer should fall), pull the cocking lever back, let it go slowly forward, and use the forward assist to seat the bolt (the hammer should fall again and the trigger should now move freely);
- (9) move the selector lever to the full-automatic position and repeat steps (7) and (8);

- (10) check the sprocket wheel in the belt-feed unit (should rotate easily in the clockwise direction and lock up in the counterclockwise direction); and
- (11) inspect the HK's underside and cock it several times (the sprocket should visually rotate every time the firearm is cocked).

Stage III

Technique: Load and zero the HK following procedures.

Meter line: 10
Total rounds: 4
Targets: 2
Load with: 4 rounds
Strings: 1
Position: Prone
HK condition: Cleared with the selector lever in the safe position, the bolt forward, and the belt-feed unit closed.

Procedure: String 1: The gunner must do the following, in order, without a time limit:

- (1) load;
- (2) obtain the correct position and grip;
- (3) set sights at 600 m and zero windage;
- (4) obtain sight alignment and sight picture on target A1;
- (5) fire 3 single rounds;
- (6) locate the center of the group;
- (7) calculate and apply sight corrections, if necessary;
- (8) fire a confirming round on target A2;
- (9) adjust the range plate scale to read 600 m; and
- (10) clear.

Stage IV

Technique: Load the HK and engage a specified target.

Meter line: 10
Total rounds: 6
Targets: 1
Load with: 6 rounds
Strings: 1
Position: Prone
HK condition: Cleared and zeroed with the selector lever in the safe position, the bolt forward, and the belt-feed unit open.

Procedure: String 1: The gunner must do the following, in order, without a time limit:

- (1) insert the belt with the first round resting against the cartridge stop on the belt-feed unit;
- (2) move the cartridge guide down until it engages the belt-feed unit;
- (3) swivel belt-feed unit upward until the catch lever engages (the HK is now half loaded);
- (4) bring to full load;
- (5) move the selector lever to the 3-round-burst position;
- (6) engage target A3 with two 3-round bursts; and
- (7) clear.

Stage V

Technique: Bring the HK from a half-load to a full-load condition and engage a specified target.

Meter line: 10
Total rounds: 6
Targets: 1
Load with: 6 rounds
Strings: 1
Position: Prone
HK condition: Half loaded and zeroed with the selector lever in the safe position.

Procedure: String 1: The gunner must do the following, in order, without a time limit:

- (1) bring to a full load;
- (2) engage target A4 with two 3-round bursts achieving a minimum of two hits; and
- (3) clear.

Stage VI

Technique: Load the HK and engage specified targets while reloading.

Meter line: 10
Total rounds: 12 (two 6-round belts)
Targets: 2
Load with: 6 rounds
Strings: 1
Position: Prone
HK condition: Cleared and zeroed with the selector lever in the safe position, the bolt forward, and the belt-feed unit open.

Procedure: String 1: The gunner must do the following, in order, without a time limit:

- (1) full load with one 6-round belt;
- (2) engage target A5 with two 3-round bursts;
- (3) reload;
- (4) engage target A6 with two 3-round bursts;
- (5) each target must sustain at least 2 hits; and
- (6) clear.

Stage VII

Technique: Bring the HK from half load to full-load condition and engage specified targets while applying immediate action.

Meter line: 10
Total rounds: 12 plus 1 dummy round
Targets: 2
Load with: 12 rounds and dummy round between 4th and 8th round.
Strings: 1
Position: Prone
HK condition: Half loaded and zeroed with selector lever in the safe position.

Procedure: String 1: The gunner must do the following, in order, without a time limit:

- (1) bring to a full load;
- (2) engage target A7 with two 3-round bursts and target A8 with two 3-round bursts;
- (3) complete immediate action within 10 seconds when required;
- (4) each target must sustain at least two hits; and
- (5) clear.

b. HK Qualification Course.

49 Total Rounds 168 Points at 70% or 192 Points at 80%
(including one
dummy round)

Stage I

Technique: Clear the HK following procedures.

Meter line: 10

Total rounds: 0

Targets: 0

Load with: 0

Strings: 0

Position: Prone

HK condition: Cleared with the selector lever in the safe position, the bolt forward, and the belt-feed unit closed.

Procedure: Within 40 seconds, the gunner must do the following, in order:

- (1) ensure the selector lever is in the safe position;
- (2) swing down the belt-feed unit and visually check to ensure no ammunition or spent links are in it; and
- (3) lock the cocking handle to the rear and visually check for ammunition in the chamber.

Stage II

Technique: Conduct an HK function check following procedures.

Meter line: 10

Total rounds: 0

Targets: 0

Load with: 0

Strings: 0

Position: Prone

HK condition: Cleared with the selector lever in the safe position, the bolt forward, and the belt-feed unit closed.

Procedure: Within 40 seconds, the gunner must accomplish the following, in order:

- (1) ensure the HK is clear;
- (2) check for unrestricted motion of the cocking lever;
- (3) cock;
- (4) with the selector lever in the safe position, pull the trigger (should not fire);
- (5) move the selector lever to semiautomatic; pull and hold the trigger to the rear (the hammer should fall);
- (6) holding the trigger to the rear, cock, release the trigger (engagement of the sear should be heard), and pull the trigger (the hammer should fall);
- (7) cock;
- (8) move the selector lever to the 3-round-burst position, pull and hold the trigger to the rear (the hammer should fall), pull the cocking lever back, and let it go slowly forward, use the forward assist to seat the bolt (the hammer should fall again and the trigger should now move freely);
- (9) move the selector lever to the full-automatic position and repeat steps (7) and (8);
- (10) check the sprocket wheel in the belt-feed unit (should rotate easily in the clockwise direction and lock up in counterclockwise direction); and

- (11) inspect the HK's underside and cock several times (the sprocket should visually rotate every time the HK is cocked).

Stage III

Technique: Bring the HK from half load to full load and engage specified targets while reloading and applying immediate action.

Meter line: 10
Total rounds: 48 plus 1 dummy round (2 belts: (1) a 24-round and (2) a 25-round with dummy between 6th and 18th round)
Targets: 8
Load with: 24-round belt
Strings: 1
Position: Prone
HK condition: Half loaded (with 24-round belt) and zeroed with the selector lever in the safe position.

Procedure: String 1: Within 2 minutes, the gunner must do the following, in order.

- (1) bring to a full load;
- (2) engage targets B5, B6, B7, and B8 with two 3-round bursts each, in any order;
- (3) reload with 25-round belt;
- (4) engage targets B1, B2, B3, and B4 with two 3-round bursts each, in any order;
- (5) complete immediate action within 10 seconds when required; and
- (6) clear.

NOTE: Only 17 bursts will be fired and each target should sustain at least 2 hits. Time stops after completing burst #17.

CHAPTER VIII - SHOOTING-ON-THE-MOVE QUALIFICATION COURSES

1. **INTRODUCTION.** The Shooting-on-the-Move Qualification Courses evaluate a shooter's marksmanship and manipulation skills while moving in a tactical environment under daylight conditions. Targets and scoring for these courses must comply with Section C, Appendix C-3.

NOTE: These courses are designed to address the skills necessary for close quarters battle (CQB) situations. In the event that a site has chosen to equip its Security Police Officer (SPO)-IIIs with a rifle with full and/or semiautomatic fire capabilities instead of an SMG for CQB operations, the Shooting-on-the-Move Submachine Gun (SMG) Qualification Course must still be used to assess shooters' skills. When such rifles are capable of semiautomatic fire only, the applicable procedure for Stages II, IV, and V of the Shooting-on-the-Move SMG Qualification Course must be utilized. Required SMG qualification scoring percentages must be maintained.

2. **INSTRUCTIONS FOR SHOOTING-ON-THE-MOVE QUALIFICATION COURSES.**
 - a. All general instructions for firearms qualification courses in Section C, Chapter II apply, except for Stage V of the SMG/Rifle Shooting-on-the-Move qualification course. Shooters, who experience a malfunction, will continue to move, transition to the handgun, cover the target, and wait until the end of the string for a firearms instructor to make a determination (e.g., an alibi).
 - b. Shooters must be qualified in the Daylight Handgun and Daylight SMG Qualification Courses before they may participate in the corresponding Shooting-on-the-Move Qualification Course.
 - c. Shooters must ensure that their firearms are in a full-load condition at the beginning of each stage of fire, except for the following:
 - (1) shooters armed with a revolver must load 2 rounds into the cylinder in a position to ensure the initial rotation will fire the first round when a stage requires speed loading;
 - (2) shooters armed with a semiautomatic handgun must load 2 rounds with 1 chambered and 1 in the magazine (full-load condition) when a stage requires speed loading;
 - (3) shooters must begin the stage that requires a transition to the handgun as a backup with the handgun holstered in a full-load condition;
 - (4) SPO-IIIs must fire these courses for qualification wearing the equipment required for duty during tactical response situations;

- (5) shooters must use an approved protective mask during Stages I and II of the Shooting-on-the-Move Handgun and SMG Qualification Courses;
- (6) shooters must fire all rounds on-the-move, as required. Rounds fired from a stationary position when they should be fired on-the-move will be deducted, at full value, from the total score; and
- (7) shooters, when applicable, must maintain the SMG/rifle on their person while firing the Shooting-on-the-Move Handgun Qualification Course.

3. SHOOTING-ON-THE-MOVE HANDGUN QUALIFICATION COURSE.

40 Total Rounds 190 Points at 90%

Stage I

Technique: Immediate response to a lethal threat at a moderate distance while wearing a protective mask.

Yard line: 10
Total rounds: 6
Targets: 1
Load with: Full load
Strings: 3
Position: Standing and wearing a protective mask

Procedure: String 1: Draw and fire 2 rounds within 3 seconds.

 Strings 2, 3: Same as Stage I, String 1.

Stage II

Technique: Response to a lethal threat at a short distance while moving, wearing a protective mask.

Yard line: Start at 7; move to 3.
Total rounds: 6
Targets: 1
Load with: Full load
Strings: 2
Position: Moving and wearing a protective mask

Procedure: String 1: From the low ready, move while firing 2 rounds center of mass and 1 round to the head within 4 seconds.

 String 2: Same as Stage II, String 1.

Stage III

Technique: Response to a lethal threat at a moderate distance while moving.

Yard line: Start at 15; move to 10

Total rounds: 6

Targets: 1

Load with: Full load

Strings: 3

Position: Moving

Procedure: String 1: From the low ready, move while firing 2 rounds within 3 seconds.

Strings 2, 3: Same as Stage III, String 1.

Stage IV

Technique: Response to a lethal threat at a moderate to short distance while moving and speed loading.

Yard line: Start at 10; move to 2

Total rounds: 8 (2 magazines or speed loaders)

Targets: 1

Load with: Semiautomatic: a round chambered and a magazine inserted with one round (to induce slide lock back); carry one fully loaded magazine (mandatory lock back).

Revolver: cylinder loaded with 2 rounds; carry one fully loaded speed loader.

Strings: 2

Position: Moving

Procedure: String 1: From the low ready, move while firing 2 rounds; reload and fire 2 rounds while moving within 7 seconds for semiautomatic and 10 seconds for revolver.

String 2: Same as Stage IV, String 1.

Stage V

Technique: Response to a lethal threat at a short distance while moving.

Yard line: Start at 7; move to 3

Total rounds: 4

Targets: 1

Load with: Full load

Strings: 4

Position: Moving

Procedure: String 1: From the low ready, move while firing 1 round within 3 seconds to target's head.

Strings 2-4: Same as Stage V, String 1.

Stage VI

Technique: Response to a lethal threat at a short distance using only the strong hand while moving.

Yard line: Start at 7; move to 3
Total rounds: 6
Targets: 1
Load with: Full load
Strings: 3
Position: Moving using only the strong hand

Procedure: String 1: From the low ready, strong hand only, move while firing 2 rounds within 3 seconds.

Strings 2, 3: Same as Stage VI, String 1.

Stage VII

Technique: Response to a lethal threat at a short distance using only the weak hand while moving.

Yard line: Start at 7; move to 3
Total rounds: 4
Targets: 1
Load with: Full-load
Strings: 2
Position: Moving using only weak hand

Procedure: String 1: From the low ready, weak hand only, move while firing 2 rounds within 3 seconds.

String 2: Same as Stage VII, String 1.

4. SHOOTING-ON-THE-MOVE SMG/RIFLE QUALIFICATION COURSE.

NOTE: Selected stages of this course are broken down into specific requirements for firing firearms with both full automatic and semiautomatic fire capabilities and for firing firearms with only semiautomatic fire capabilities. Shooters utilizing firearms with full-automatic capabilities, when firing stages requiring the selector switch to be set to the full-automatic position, are not required to also fire the same stage with the selector switch set to the semiautomatic position.

40 Total Rounds 180 Points at 90% for full automatic or 126 Points at 90% for
for full-automatic or semiautomatic
28 for semiautomatic

Stage I

Technique: Response to a lethal threat at a moderate distance using the standing offhand and wearing a protective mask.

Yard line: 25
Total rounds: 4
Targets: 1
Load with: Full load
Strings: 2
Position: Standing off-hand and wearing a protective mask

Procedure: String 1: Begin with the selector lever set to the semiautomatic position, and fire 2 rounds within 5 seconds.
String 2: Same as Stage I, String 1.

Stage II

Technique: Response to a lethal threat at a moderate to short distance while moving and wearing a protective mask.

Yard line: Start at 10; move to 5
Total rounds: 8 for full-automatic fire or 4 for semiautomatic fire
Targets: 1
Load with: Full load
Strings: 2
Position: Moving and wearing a protective mask

Procedure: For full-automatic firearms:
String 1: Begin with the selector lever set to the full-automatic position and move while firing two 2-round bursts within 3 seconds.
String 2: Same as Stage II, String 1.
For semiautomatic firearms:
String 1: Begin with the selector lever set to the semiautomatic position and move while firing 2 rounds within 3 seconds.
String 2: Same as Stage II, String 1.

Stage III

Technique: Response to a lethal threat at a moderate to short distance while moving with semiautomatic fire.

Yard line: Start at 10; move to 5

Total rounds: 6

Targets: 1

Load with: Full load

Strings: 2

Position: Moving

Procedure: String 1: Begin with the selector lever set to the semiautomatic position and move while firing 2 rounds to the center of mass and 1 round to the head within 4 seconds.

String 2: Same as Stage III, String 1.

Stage IV

Technique: Response to a lethal threat at a short distance while moving with automatic fire.

Yard line: Start at 7; move to 3

Total rounds: 12 for full-automatic fire or 6 for semiautomatic fire

Load with: Full load

Strings: 2

Position: Moving

Procedure: For full-automatic firearms:

String 1: Begin with the selector lever set to the automatic position and move while firing two 2-round bursts to the center of mass and one 2-round burst to the head within 4 seconds.

String 2: Same as Stage IV, String 1.

For semiautomatic firearms:

String 1: Begin with the selector lever set to the semiautomatic position and move while firing 2 rounds to the center of mass and 1 round to the head within 4 seconds.

String 2: Same as Stage IV, String 1.

Stage V

Technique: Response to a lethal threat at a moderate to short distance while moving, transitioning from the SMG to the handgun.

Yard line: Start at 10; move to 2

Total rounds: 10 for automatic fire or 8 for semiautomatic fire

Targets: 1

Load with: For full-automatic firearms, 1 magazine with 2 rounds; handgun, full-load.

For semiautomatic firearms, 1 magazine with 1 round; handgun, full load

Strings: 2

Position: Moving

Procedure: For full-automatic firearms:

String 1: Begin with the selector lever set to full-automatic position and the handgun holstered, move while firing one 2-round burst to center of mass, attempt to fire second 2-round burst to center of mass, transition to the handgun, fire 2 rounds to center of mass, and 1 round to the head within 8 seconds.

String 2: Same as Stage V, String 1.

For semiautomatic firearms:

String 1: Begin with the selector lever set to semiautomatic position and the handgun holstered, move while firing 1 round to center of mass, attempt to fire the second round to center of mass, transition to the handgun, and fire 2 rounds to center of mass and 1 round to the head within 8 seconds.

String 2: Same as Stage V, String 1.

CHAPTER IX - PRECISION RIFLE QUALIFICATION COURSES

1. INTRODUCTION. The Precision Rifle Qualification Courses evaluate a shooter's marksmanship with and manipulation of a bolt action or semiautomatic precision rifle equipped with a scope, at various distances, while engaging stationary and moving targets. An observer/spotter accompanies the shooter during the stages to assist the shooter with the identification and evaluation of the target. Course targets and scoring must comply with Section C, Appendix C-3 and Appendix C-5.
2. INSTRUCTIONS FOR PRECISION RIFLE QUALIFICATION COURSES.
 - a. All general instructions for firearms qualification courses in Section C, Chapter II apply.
 - b. Shooters must begin all stages, except Stage I of the Day Precision Rifle Qualification Course, with the rifle in a full-load condition.
 - c. Shooters must use rifles authorized for duty and equipped with slings and scopes. The rifles may be equipped with an attached support such as a bi-pod.
 - d. Shooters must ensure rifles are in a safe condition at the conclusion of each string.
 - e. Shooters must engage moving targets, which traverse the range at a speed of 4 to 6 feet per second and must be exposed for firing for a minimum of 4 and a maximum of 6 seconds while moving, or available for firing for 3 seconds when they are stopped.
 - f. Shooters will fail the course if a hit is confirmed in a prohibited strike zone.
 - g. The cold, clean barrel requirement in Stage I must be met by a rifle taken to the range in its duty-ready condition. Sight adjustments may be made at any time; however, no sighting rounds may be fired. If sight adjustments are necessary after the first stage has been fired, sighting shots may be fired; however, the score for the first shot in Stage I must be for the record.
 - h. Shooters must wear the uniform and equipment authorized for duty and required for an actual tactical response.
 - i. Shooters may employ slings in the full support position ("slung-up") when required to be sighted on the target prior to the command to fire.
 - j. Shooters must use the provided barricades for cover and may use them for support when firing. Sitting position barricades must be approximately 24 inches high and kneeling position barricades must be approximately 32 inches high.

3. DAYLIGHT PRECISION RIFLE QUALIFICATION COURSE.

16 Total Rounds 64 Points at 80%

Stage I

Technique: Tactical response to a long-distance threat after moving into position and using a rifle with a cold, clean barrel to obtain a precision first shot.

Yard line: Start at 150, run to 100

Total rounds: 1

Targets: 1

Load with: 1 round

Strings: 1

Position: Shooter's choice

Procedure: String 1: Begin with a clean rifle, cold barrel, in the half-load configuration, 1 round loaded into the magazine. Run to the 100-yard line with the rifle in a tactical carry position, assume a position of choice, chamber, and fire 1 round to target's head within 26 seconds.

Stage II

Technique: Tactical response to a lethal threat at a moderate distance while using cover.

Yard line: 50

Total rounds: 2

Targets: 1

Load with: 2 rounds

Strings: 1

Position: Kneeling/barricade

Procedure: String 1: Begin sighted on the target, in full-load configuration, and fire 2 rounds to the center of mass within 4 seconds.

Stage III

Technique: Tactical response to a lethal threat at a moderate distance while using cover and initiating fire according to a countdown while maintaining a correct sight picture.

Yard line: 50

Total rounds: 2

Targets: 1

Load with: 2 rounds

Strings: 2

Position: Kneeling/barricade

- Procedure: String 1: Begin sighted on the target in a full-load configuration and listen to range countdown (“Standby - 5, 4, 3, 2, 1”). Fire 1 round to the target’s head on the count of 2 within 1 second. On the count of 1, the target will face away if turning is possible.
- String 2: Same as Stage III, String 1.

Stage IV

Technique: Tactical response to a lethal threat at a long distance and initiating fire according to a countdown while maintaining a correct sight picture.

- Yard line: 100
Total rounds: 2
Targets: 1
Load with: 2 round
Strings: 2
Position: Shooter’s choice

- Procedure: String 1: Begin sighted on the target in a full-load configuration and listen to range countdown (“Standby - 5, 4, 3, 2, 1”). Fire 1 round to the target’s head on the count of 2 within 1 second. On the count of 1, the target will face away if turning is possible.
- String 2: Same as Stage IV, String 1.

Stage V

Technique: Tactical response to a moving lethal threat at a long distance.

- Yard line: 200
Total rounds: 2
Targets: 1
Load with: 2 rounds
Strings: 1
Position: Shooter’s choice

- Procedure: String 1: Begin sighted in towards a concealed target in a full-load configuration. When the target is exposed, fire 2 rounds to the center of mass within 6 seconds.

Stage VI

Technique: Tactical response to a threat at a long distance under severe time constraint.

Yard line: 200
Total rounds: 1
Target: 1
Load with: 1 round
Strings: 1
Position: Shooter's choice

Procedure: String 1: Begin sighted in on an exposed target in a full-load configuration and listen for range instruction, "Standby, Ready, Fire." Fire 1 round to the center mass on the command of "Fire." The target will turn 1 second after the command to "Fire" is given if turning is possible.

Stage VII

Technique: Tactical response to a lethal threat at an extended long distance.

Yard line: 300
Total rounds: 2
Targets: 1
Load with: 2 rounds
Strings: 1
Position: Shooter's choice

Procedure: String 1: Begin sighted in toward a concealed target in a full-load configuration. When the target is exposed, fire 2 rounds to the center of mass in 8 seconds.

Stage VIII

Technique: Tactical response to a moving lethal threat at a long distance, while using cover. The target will be the reduced target, as outlined in Section C, Appendix C-3.

Yard line: 50
Total rounds: 2
Targets: 1
Load with: 2 rounds
Strings: 2
Position: Kneeling/barricade

Procedure: String 1: Begin looking for a moving target while sighted in toward the concealed target, in a full-load configuration. When the target moves and is exposed, fire 1 round to the center mass while the target continues to move, from left to right or right to left.

String 2: Same as Stage VIII, String 1; however, the target must be engaged while moving in the opposite direction as String 1.

Stage IX

Technique: Tactical response to a moving lethal threat that is located at a long distance but is not constantly moving. The target used will be the reduced target, as outlined in Section C, Appendix C-3.

Yard line: 100
Total rounds: 2
Targets: 1
Load with: 2 rounds
Strings: 1
Position: Shooter's choice

Procedure: String 1: Begin looking for a moving target while sighted in toward the concealed target in a full-load configuration. When the target moves and is exposed, fire 2 rounds to the center mass. The target will stop a total of 4 times while moving from left to right or right to left.

4. REDUCED LIGHTING PRECISION RIFLE QUALIFICATION COURSE.

10 Total Rounds 40 Points at 80%

Stage I

Technique: Tactical response to a lethal threat at a long distance using a rifle with a cold, clean barrel to obtain a precision first shot.

Lighting standard: Dim light
Yard line: 100
Total Rounds: 2
Targets: 1
Load with: 2 rounds
Strings: 1
Position: Shooter's choice

Procedure: String 1: Begin sighted in on the target with a clean rifle, cold barrel, full-load configuration and listen for range instruction, "Standby, Ready, Fire." Fire 1 round to the target's head on the command of "Fire." Immediately after the shot, fire 1 round to the target's center mass within 5 seconds.

Stage II

Technique: Tactical response to a lethal threat at a long distance while using cover.

Lighting standard: Dark
Yard line: 50
Total Rounds: 2
Targets: 1
Load with: 2 rounds
Strings: 1
Position: Kneeling/supported

Procedure: String 1: Begin sighted on target, full-load configuration, and fire 2 rounds to the center of mass within 5 seconds.

Stage III

Technique: Tactical response to a lethal threat at a long distance while using cover and initiating fire according to a coordinated countdown while maintaining a correct sight picture.

Lighting standard: Dark
Yard line: 50
Total rounds: 2
Targets: 1
Load with: 2 rounds
Strings: 2
Position: Kneeling/supported

Procedure: String 1: Begin sighted on target, in full-load configuration, and listen to range countdown (“Standby - 5, 4, 3, 2, 1”). Fire 1 round to the target’s head on count of 2 within 1 second.

String 2: Same as Stage III, String 1.

Stage IV

Technique: Tactical response to a lethal threat at a long distance while using cover and initiating fire according to a coordinated countdown while maintaining a correct sight picture.

Lighting standard: Dim light
Yard line: 100
Total rounds: 2
Targets: 1
Load with: 2
Strings: 2
Position: Shooter’s choice

CHAPTER X - LIVE-FIRE SHOOT HOUSE QUALIFICATION COURSES

1. INTRODUCTION. There are two live-fire shoot house (LFSH) Qualification Courses, the Open Doors Skills Test (ODST) and the Closed Doors Skills Test (CDST). The Open Door Skills test evaluates the basic fundamentals of room clearing procedures, while the Closed Door Skills test evaluates all encompassing areas of stronghold assaults. During the CDST the student will be evaluated as point assaulter; the proper positioning in relationship to closed and open doors; and deployment of diversionary devices(s). In both tests one student will be evaluated at a time. Rifles capable of fully automatic fire shall be employed only in the semi-automatic mode in the LFSH.
 - a. The LFSH ODST Qualification Course is used in the DOE-approved Security Police Officer (SPO)-III Basic Qualification Course (BQC) as a pass/fail evaluation measure of a candidate SPO-III's skills in LFSH operations conducted in Week Three of the BQC.
 - b. The LFSH CDST Qualification Course is used in the SPO-III BQC in Week Four as the final pass/fail evaluation of a candidate SPO-III's marksmanship, firearms manipulation, decision-making ability, and tactical entry skills. The LFSH CDST is the required semi-annual LFSH Qualification Course for incumbent SPO-IIIs.
 - c. The LFSH course elements simulate realistic requirements during dynamic engagements with lethal adversaries delineated in the Design Basis Threat (DBT). The shooter is accompanied, throughout the courses, by a certified SPO-III or SPO-III Instructor, whose skills have been verified by the LFSH Instructor. The SPO-III/SPO-III Instructor acts as the shooter's team member to enhance realism. Additionally, a Control Instructor follows the shooter to control the shooter's execution of the course and movements. The Instructor-in-Charge is stationed in an elevated observation/control platform to oversee and control the entire course. Together, the two instructors and the SPO-III/SPO-III Instructor provide complete observation, positive control, and detailed evaluation of the shooter. Target descriptions and scoring instructions are set forth in Section C, Appendix C-3. The LFSH Qualification Course differs from other firearms qualification courses because it consists of only one stage.
 - d. Only one shooter is evaluated (participates) at a time during the conduct of the LFSH Qualification Courses.

NOTE: These courses are designed to address the skills necessary for CQB situations. In the event that a site has chosen to equip its SPO-IIIs with a rifle with full and/or semiautomatic fire capabilities instead of an SMG for CQB operations, the LFSH Qualification Courses must still be used to assess shooters' skills. Required LFSH qualification scoring percentages must be maintained.
2. INSTRUCTIONS FOR LFSH QUALIFICATION COURSES.
 - a. All general instructions for firearms qualification courses in Section C, Chapter II apply, except in the area of clearing malfunctions, which require a transition from the submachine gun (SMG)/rifle to the handgun.

- b. The course must be administered by instructors who have successfully completed the SPO-III Instructor Certification Course conducted by the Department of Energy (DOE) National Training Center (NTC) and must be implemented in accordance with the requirements and procedures established within the SPO-III Certification Program.
- c. The course must be fired only when the Instructor-in-Charge, the Control Instructor, and the SPO-III (or SPO-III Instructor) accompanying the shooter are all present and in their respective assigned positions.
- d. All shooters must receive, in addition to the general firearms/range safety briefing, a specific LFSH Qualification Course Safety Briefing focusing on particular course requirements.
- e. Shooters must be SPO-IIIs or SPO-IIs undergoing SPO-III training.
- f. The shooter must begin the course on the first command to “Execute.”
- g. The shooter must be evaluated and scored on correct performance of required course procedures and completion of the course within the site-specific time limit.
- h. Shooters may accumulate up to 5 procedural errors and must complete the course within the specified time or less, in order to qualify.
- i. The time limit for the ODST will be determined and validated by the physical characteristics of the site’s LFSH (e.g., the NTC’s LFSH time limit is 45 seconds).
- j. The time limit for the CDST will be determined and validated by the physical characteristics of the site’s LFSH.
- k. The shooter will fail the course for any one of the following reasons (with the opportunity to retest):
 - (1) failing to clear a room in the prescribed order;
 - (2) rounds on a target with a prohibited strike anywhere other than the head, when head shots only are required;
 - (3) missing the silhouette of the picture target but impacting the bullet trap;
 - (4) failing to engage a “shoot” target;
 - (5) exceeding the course time limit;
 - (6) dropping a loaded firearm to the ground;
 - (7) allowing a SMG/rifle to be slung/hung in a condition that by pressing the trigger the weapon fires;
 - (8) accumulating more than five procedural errors;
 - (9) shooting at a “no-shoot” target;
 - (10) causing a round to print within or cut the prohibited strike zone on a “shoot” target (hostage target); and/or

- (11) demonstrating a blatant disregard for safety.
 - l. For ODST only, a shooter experiencing a malfunction of the SMG/rifle must transition to the handgun immediately and complete the course, even if the malfunction occurs before the mandatory transition point.
 - m. Appropriate targets must be engaged while on the move.
 - n. The shooter must transition from the SMG/rifle to the handgun during the ODST.
3. LFSH COURSES LAYOUT REQUIREMENTS. The LFSH layout must allow for variations for entry points (doors opening in and out), target placement, and room configuration to preclude repetitiveness and memorization of the course. The following layout requirements must be in place for the LFSH Qualification Courses to be conducted:
- a. three separate rooms for entry, of which one must be on the opposite side of the hall from the other two; the CDST should incorporate two closed doors and one open door;
 - b. at least two targets that do not present a lethal threat (“no-shoot” target);
 - c. For the ODST there should be five targets presenting lethal threats (“shoot” targets), of which two require firing rounds to the head of the target (one for the SMG and one for the handgun) for the CDST there should be one hallway target as well as three shoot targets one of which require firing rounds to the head of the target (hostage holder);
 - d. in each room, at least three ballistic walls allowing a 180° degree area for firing; and
 - e. there must be at least 3 different LFSH layouts incorporating different “shoot” and “no-shoot” target placements, and where possible, incorporating different entry points and room configurations.

NOTE: The LFSH Qualification Course must not be conducted on the same layout during consecutive semiannual qualification attempts.

4. LFSH QUALIFICATION COURSES.

Open Door Skills Test

Technique: Tactical response to lethal threats requiring constant movement, precision marksmanship, correct firearm manipulation, demonstration of correct room clearing procedures, and target identification.

Yard line: Distances to targets may vary

Total rounds: 17 Full-auto (SMG only)
9 Semi-auto (Rifle or SMG)

Targets: 5 shoot targets and at least 2 no-shoot targets

Time limit: Calculated by distance traveled in feet, divided by 3, which equals the maximum time in seconds allowed.

Strings: 4
Position: Standing, using equipment authorized for duty during a tactical response

Procedure: For full-automatic firearms:
Load with: SMG with 1 magazine of 16 rounds; handgun in full-load configuration

String 1: Begin in a standing position with the handgun holstered. Carry the SMG in a full-load condition at the low ready, and set the selector lever to the safe position. Move to and enter Room 1 (e.g., door opening in), clear the room correctly while engaging targets appropriately (safety lever must be moved to the appropriate position to engage targets and returned to the safe position when the firearm is returned to the low ready position), announce status and intention, and exit Room 1.

String 2: Continue movement to Room 2 (e.g., door opening in), enter, and repeat procedures as in String 1.

String 3: Upon exiting Room 2 en route to Room 3 (e.g., door opening out), engage hallway target until shooter experiences a malfunction. The shooter will then safely transition to the handgun and proceed to Room 3.

String 4: Continue movement to Room 3, enter, and clear the room while engaging targets appropriately with the handgun. Announce status, as directed, clear and holster a safe handgun, clear the SMG, set the selector lever in the safe position, and await instruction. Timing will stop upon firing last round in Room 3.

Procedure: For semiautomatic firearms:
Load with: SMG/rifle with 1 magazine of 8 rounds; handgun in full-load configuration

String 1: Begin in a standing position with the handgun holstered. Carry the SMG/rifle in a full-load condition at the low ready and set the selector lever to the safe position. Move to and enter Room 1, clear the room correctly while engaging targets appropriately (safety lever must be moved to the

appropriate position to engage targets and returned to the safe position when the firearm is returned to the low ready position), announce status and intention, and exit Room 1.

- String 2: Continue movement to Room 2, enter, and repeat procedures as in String 1.
- String 3: Upon exiting Room 2 en route to Room 3, engage hallway target until shooter experiences a malfunction. The shooter will then safely transition to the handgun and proceed to Room 3.
- String 4: Continue movement to Room 3, enter, and clear the room while engaging targets appropriately with the handgun. Announce status, as directed, clear and holster a safe handgun, clear the SMG/rifle, set the selector lever in the safe position, and await instruction. Timing will stop upon firing last round in Room 3.

Closed Door Skills Test

Technique: Tactical response to lethal threats requiring constant movement, precision marksmanship, correct firearm manipulation, demonstration of correct room clearing procedures, and target identification while utilizing diversionary devices with closed and open doors.

- Yard Line: Distances to target may vary
- Total Rounds: 20 Full-auto fire (SMG only)
10 Semi-auto fire (SMG or rifle)
- Targets: 4 shoot targets and 2 no shoot targets
- Time limit: Site Determined
- Strings: 4
- Position: Standing, using equipment authorized for duty during a tactical response
- Procedure: For full-automatic firearms
- Load with: SMG in a full load with a full magazine, handgun in a full load configuration.
- String 1: Begin in a standing position with the handgun holstered. Carry the SMG in a full-load condition at the low ready and

the selector lever to the safe position. Upon the command of “execute” move down the hallway announcing upcoming danger areas. While moving down the hallway appropriately engage the hallway shoot target.

String 2: Move to room number one and set up on the door properly and act as cover while the SPO-III instructor deploys a diversionary device. Enter room 1 first, correctly clearing the room and engage targets appropriately (safety lever must be moved to the appropriate position to engage targets and returned to the safe position when the firearm is returned to the low ready position) announce status and intention and proceed to room 2 (the SPO-III Instructor will be the first out of the room).

String 3: At room number two, the SPO-III instructor will set up as cover on the door. Deploy a diversionary device properly into room 2. Enter room 2 as the second assaulter and correctly clear the room and engage targets appropriately (safety lever must be moved to the appropriate position to engage targets and returned to the safe position when the firearm is returned to the low ready position) announce status and intention and proceed to room three (the SPO-III instructor will be the last one out of room 2).

String 4: At room3, set up as cover on the open door while the SPO III instructor deploys a diversionary device into room 3. Enter room 3 first, correctly clearing the room and engage targets appropriately (safety lever must be moved to the appropriate position to engage targets and returned to the safe position when the firearm is returned to the low ready position).

Note: If a malfunction is experienced, transition to the handgun and finish the string of fire. Prior to leaving the room, perform a tactical reload with the handgun and clear the malfunction in the rifle and continue the course with the rifle as the primary weapon.

Procedure: For Semi-Auto firearms
Load with: SMG/Rifle in a full load with a full magazine, handgun in a full-load configuration.

String 1: Begin in a standing position with the handgun holstered. Carry the SMG/Rifle in a full-load condition at the low ready and the selector lever to the safe position. Upon the command of “execute” move down the hallway announcing

upcoming danger areas. While moving down the hallway appropriately engage the hallway shoot target.

- String 2: Move to room number one and set up on the door properly and act as cover while the SPO-III instructor deploys a diversionary device. Enter room 1 first, correctly clearing the room and engage targets appropriately (safety lever must be moved to the appropriate position to engage targets and returned to the safe position when the firearm is returned to the low ready position). Announce status and intention and proceed to room number two (the SPO-III Instructor will be the first out of the room).
- String 3: At room number two, the SPO-III instructor will set up as cover on the door. Deploy a diversionary device properly into room two. Enter room 2 as the second assaulter and correctly clear the room and engage targets appropriately (safety lever must be moved to the appropriate position to engage targets and returned to the safe position when the firearm is returned to the low ready position). Announce status and intention and proceed to room 3 (the SPO-III instructor will be the last one out of room 2).
- String 4: At room three, set up as cover on the open door while the SPO-III instructor deploys a diversionary device into room three. Enter room 3 first, correctly clearing the room and engage targets appropriately (safety lever must be moved to the appropriate position to engage targets and returned to the safe position when the firearm is returned to the low ready position).

Note: If a malfunction is experienced, transition to the handgun and finish the string of fire. Prior to leaving the room, perform a tactical reload with the handgun and clearing the malfunction in the rifle and continue the course with the rifle as the primary weapon.

APPENDIX C-1 - REDUCED LIGHTING STANDARDS AND MEASUREMENTS FOR FIREARMS QUALIFICATION COURSES

1. INTRODUCTION. Two reduced lighting standards are used in certain U.S. Department of Energy (DOE) firearms qualification courses. The following requirements establish the need for reduced lighting standards:
 - a. ensure that all reduced light qualification courses are conducted in a consistent manner;
 - b. provide as realistic as possible reduced lighting conditions that protective force (PF) personnel may experience at exterior security posts and other less illuminated areas on a facility;
 - c. allow for a consistent condition in which PF personnel are required to use a flashlight to satisfactorily identify and engage a perceived threat;
 - d. meet the above requirements while providing sufficient illumination for safe skills evaluation and instructor control.

2. LIGHTING STANDARDS.
 - a. Dim Light. The Dim Light Standard equates approximately to a measurement of 0.2-foot candles.
 - b. Dark Light. The Dark Standard equals the measurement of less than 0.2-foot candles. The use of a flashlight system is mandatory during qualification course stages fired at the Dark Standard.

3. LIGHTING STANDARDS MEASUREMENT AND APPLICATION. Both lighting standards must be determined by using a calibrated light meter and taking light measurements from the target face while directing the receptor portion of the meter toward the light source. Ensure that the body does not shield any light source from the receptor during this measurement to guarantee an accurate measurement.

Normal Dim Light and Dark Light Standards measurements may be exceeded, provided the cause of the excess is due solely to a natural condition (e.g., moonlight or starlight). However, no reduced lighting qualification course may be fired if a measurement exceeds 0.2-foot candles due to dawn, dusk, or artificial illumination.

APPENDIX C-2 - REMEDIAL FIREARMS QUALIFICATION COURSE

1. **INTRODUCTION.** The purpose of the Remedial Firearms Qualification Course is to assist protective force (PF) personnel who fail to qualify in a particular firearms qualification course. The course is scheduled as needed, includes daylight and reduced lighting range conditions, and is administered by U.S. Department of Energy (DOE)-certified firearms instructors. Firearms instructors review available firearms qualification documentation and focus instruction on previously identified problem areas for individual shooters while reinforcing the principles of marksmanship, firearms manipulation, and safety in accordance with approved instruction plans for PF personnel.
2. **INSTRUCTIONS FOR REMEDIAL FIREARMS QUALIFICATION COURSE.**
 - a. The course must consist of two phases, each of which must be no more than 4 hours long. Phase I must address the basic fundamentals of marksmanship, beginning with dry-firing exercises, advancing to live-fire practice, and culminating in a qualification attempt. Should the shooter fail the Phase I qualification attempt, Phase II must address the shooting defect(s) identified during Phase I and culminate in a second qualification attempt. Phase II will not be required if Phase I culminates in a successful qualification attempt.
 - b. Firearms instructors must provide one-on-one instruction, require correct demonstration of shooting techniques through dry-fire exercises before permitting live-fire practice, and carefully analyze all results with the shooter to remedy the identified problem(s).
 - c. Firearms instructors must document course progress to include identification of the shooter's problem(s), remedial action(s), and the number of rounds expended to correct the problem(s).
 - d. Firearms instructors must assist shooters to ensure the correct sighting of a firearm, should it be questioned; verify sighting, if required; and resolve any question before live-fire qualification practice.
 - e. Shooters must be permitted to slowly fire a specified number of rounds for live-fire qualification practice from the position(s) or employing the technique(s) determined to have occasioned the problem(s).
 - f. Shooters must be allowed to attempt the applicable firearms qualification course following the live-fire qualification practices with less than 4 hours of remedial training, subject to the concurrence of the shooter.
 - g. Shooters are required to attempt the applicable firearms qualification course in order to complete Phase I of this course.

- h. Shooters are required to attempt the applicable firearms qualification course, following completion of each phase of Remedial Firearms Qualification Course.
 - i. The shooter must complete Phase II within 30 days of initial entry into the Remedial Firearms Qualification Course, if the shooter fails the applicable firearms qualification course during Phase I.
 - j. A shooter successfully completing the applicable firearms qualification course must be returned to a full duty status.
 - k. A shooter who fails to qualify after Phase II training loses his/her Security Police Officer (SPO) status and must be disarmed, per the requirements of 10 Code of Federal Regulations (CFR), Part 1046, Appendix B, paragraph (9)j.
3. REMEDIAL FIREARMS QUALIFICATION COURSE. The applicable firearms qualification course must be conducted in accordance with this Manual. It must be preceded by the announcement, "This is a qualification run for score."

APPENDIX C-3 - TARGETS AND SCORING FOR DOE FIREARMS QUALIFICATION COURSES

1. INTRODUCTION. Target descriptions and scoring methods for different firearms and qualification courses are set forth below.
2. TARGETS.
 - a. The U.S. Department of Energy (DOE) Standard Target must be used for all firearms qualification courses except the Light Machine Gun (LMG) and Live-Fire Shoot House (LFSH) Qualification Courses. This target closely replicates an average-sized human form and provides scoring rings for center of mass and head shots, contrast to assist sighting, a line 8 inches below the top of the head (neckline). The target design accommodates adaptation to varying courses.
 - b. A reduced-sized DOE Standard Target is available to simulate firing from 50 yards and 100 yards when actually firing from the 25-yard and 50-yard lines, respectively. This reduced target is scored the same way as the full-size target.
 - c. The Standard Military 10-Meter Target is used for LMG Qualification Courses.
 - d. The LFSH Qualification Course requires picture targets that replicate or accommodate the center of mass and head scoring areas/scoring rings of a DOE Standard Target. Should the picture targets not display the required center of mass and head scoring rings, the scoring templates in Appendix C-4 must be used to replicate the standard scoring area.
3. INSTRUCTIONS FOR SCORING DOE STANDARD TARGET. Regardless of size, targets must be scored as follows.
 - a. Handgun, Rifle, Submachine Gun (SMG).
 - (1) Center of mass scoring ring, when specified by the course:
 - (a) a projectile print within or cutting the inner ring is 5 points;
 - (b) a projectile print between the inner and outer ring is 4 points; and
 - (c) a projectile print outside the outer ring but within or cutting the silhouette is 3 points.
 - (2) Head scoring ring, when specified by the course:
 - (a) a projectile print within or cutting the scoring ring is 5 points;

- (b) a projectile print outside the scoring ring, but within or cutting the silhouette, provided it is at the neck line, is 3 points; and
 - (c) a projectile failing to print within or cut the head silhouette at the neckline is 0 points.
 - (3) Other considerations:
 - (a) A projectile cutting the line of a higher ring value receives the higher value;
 - (b) when course procedures permit and head shots are required, attempted head shots should be marked before progressing to the next stage; and
 - (c) the initial edge of impact must determine the value of a projectile that strikes a target, making a slashing cut, as the target is turning.
 - b. Shotgun. When the DOE Standard Target is scored for the Shotgun Qualification Courses, any projectile printing on or cutting the silhouette of the human form must be one point.
 - c. Precision Rifle. When the DOE Standard Target is scored for the Precision Rifle Qualification Courses, the following rules apply.
 - (1) Head:
 - (a) use the head scoring template in Section C, Appendix C-4 to score the head shot holes;
 - (b) a projectile print within or cutting the inner ring is 5 points;
 - (c) a projectile print within or cutting the middle ring is 4 points;
 - (d) a projectile print within or cutting the outer ring is 2 points; and
 - (e) a projectile print outside the outer ring is 0 points.
 - (2) Center of mass:
 - (a) use the center of mass scoring template in Section C, Appendix C-4 to score the center of mass shot holes;
 - (b) a projectile print within or cutting the inner ring is 5 points;
 - (c) a projectile print within or cutting the middle ring is 4 points;

- (d) a projectile print within or cutting the outer ring is 2 points; and
- (e) a projectile print outside the outer ring is 0 points.

(3) Disqualification:

- (a) a projectile failing to print on the silhouette constitutes an automatic failure; and
- (b) during Stages VIII and IX of the Daylight Precision Rifle Qualification Course, a projectile failing to print on the reduced strike zone constitutes an automatic failure.

4. INSTRUCTIONS FOR SCORING STANDARD MILITARY TARGET. Targets used for LMG Qualification Courses use only the tombstone scoring area, which must be scored as follows:

- a. a projectile print within or cutting the tombstone scoring area is 5 points; and
- b. a projectile print outside the tombstone scoring area is 0 points.

5. QUALIFYING SCORES AND REQUIREMENTS.

a. Handgun (All Handgun Qualification Courses except Shooting-on-the-Move).

- (1) Daylight.
 - Total rounds: 60
 - Qualification requirements: 70 percent: FO, FA, SA, SPO-I and -II
80 percent: SPO-III
 - Maximum points: 300
 - Minimum points: (210 = 70 percent), (240 = 80 percent)
- (2) Reduced lighting.
 - Total rounds: 24
 - Qualification requirements: 70 percent: FO, FA, SA, SPO-I and -II
80 percent: SPO-III
 - Maximum points: 120
 - Minimum points: (84 = 70 percent), (96 = 80 percent)
- (3) SPO-III daylight combined handgun.
 - Total rounds: 58
 - Qualification requirements: 90 percent: SPO-III
 - Maximum points: 290

Minimum points: 261

b. Rifle (All Rifle Qualification Courses except the Precision Rifle Qualification Courses).

(1) Semiautomatic.

(a) Daylight.

Total rounds: 30
Qualification requirements: 70 percent: FO, FA, SA, SPO-I and SPO-II
80 percent: SPO-III
Maximum points: 150
Minimum points: (105 = 70 percent),
(120 = 80 percent)

(b) Reduced lighting.

Total rounds: 20
Qualification requirements: 70 percent: FO, FA, SA, SPO-I and SPO-II
80 percent: SPO-III
Maximum points: 100
Minimum points: (70 = 70 percent),
(80 = 80 percent)

(2) Automatic.

(a) Daylight.

Total rounds: 30
Qualification requirements: 70 percent: FO, FA, SA, SPO-I and SPO-II
80 percent: SPO-III
Maximum points: 150
Minimum points: (105 = 70 percent),
(120 = 80 percent)

(b) Reduced lighting.

Total rounds: 24
Qualification requirements: 70 percent: FO, FA, SA, SPO-I and SPO-II
80 percent: SPO-III
Maximum points: 120
Minimum points: (84 = 70 percent), (96 = 80 percent)

(3) SPO-III Daylight Combined Rifle/SMG.

Total rounds:	84 (Automatic) 60 (Semiautomatic)
Qualification requirements:	90 percent
Maximum points:	420 (Automatic) 300 (Semiautomatic)
Minimum points:	378 (Automatic) 270 (Semiautomatic)

c. Shotgun (Daylight and Reduced Lighting).

(1) 9 projectiles (pellets) per round.

Total rounds:	10
Qualification requirements:	70 percent: FO, FA, SA, SPO-I and SPO-II 80 percent: SPO-III
Maximum points:	90
Minimum points:	(63 = 70 percent), (72 = 80 percent)

(2) 12 projectiles (pellets) per round.

Total rounds:	10
Qualification requirements:	70 percent: FO, FA, SA, SPO-I and SPO-II 80 percent: SPO-III
Maximum points:	120
Minimum points:	(84 = 70 percent), (96 = 80 percent)

(3) Slug.

Total rounds:	5
Qualification requirements:	70 percent: FO, FA, SA, SPO-I and SPO-II 80 percent: SPO-III
Maximum points:	5
Minimum points:	(3 = 70 percent), (4 = 80 percent)

d. SMG.

(1) Daylight.

Total rounds:	60
Qualification requirements:	70 percent: FO, FA, SA, SPO-I and SPO-II 80 percent: SPO-III
Maximum points:	300
Minimum points:	(210 = 70 percent), (240 = 80 percent)

- (2) Reduced lighting.
 - Total rounds: 30
 - Qualification requirements: 70 percent: FO, FA, SA, SPO-I and -II
80 percent: SPO-III
 - Maximum points: 150
 - Minimum points: (105 = 70 percent), (120 = 80 percent)

- e. LMG.
 - Total rounds: 49 (including 1 dummy round)
 - Qualification requirements: 70 percent: FO, FA, SA, SPO-I and SPO-II
80 percent: SPO-III
 - Maximum points: 240
 - Minimum points: (168 = 70 percent), (192 = 80 percent)

- f. Shooting-on-the-Move.
 - (1) Handgun.
 - Total rounds: 40
 - Qualification requirements: 90 percent: FO, FA, SA, SPO-III
 - Maximum points: 200
 - Minimum points: (180 = 90 percent)

 - (2) SMG/rifle.
 - Total rounds: 40 (Automatic)
28 (Semiautomatic)
 - Qualification requirements: 90 percent: FO, FA, SA, SPO-III

 - Maximum points: 200 (Automatic)
140 (Semiautomatic)
 - Minimum points: (180=90 percent) (Automatic)
(126=90 percent) (Semiautomatic)

- g. Precision Rifle.
 - (1) Daylight.
 - Total rounds: 16
 - Qualification requirements: 80 percent: FO, FA, SA, SPO-III
 - Maximum points: 80
 - Minimum points: (64 = 80 percent)

 - (2) Reduced lighting.
 - Total rounds: 10
 - Qualification requirements: 80 percent: FO, FA, SA, SPO-III
 - Maximum points: 50
 - Minimum points: (40 = 80 percent)

h. LFSH.

Total rounds: 17 (Automatic)
 8 (Semiautomatic)

(1) Scoring hits, misses, and disqualifiers.

(a) Picture target presenting a lethal threat or a “shoot” target.

1 A projectile that prints within or cuts the scoring rings of the center of mass or head must be a hit if it does not print within or cut a prohibited strike zone.

2 A projectile printing within or cutting a prohibited strike zone must be a disqualifier.

3 A projectile printing anywhere on the silhouette, but not within or cutting a scoring ring and not within or cutting a prohibited strike zone, must be scored as a miss. For a target that should be engaged with rounds to the head only, any projectile printing within or cutting the standard center of mass scoring area must be scored as a miss.

4 A projectile failing to print anywhere on the target or its backing must be a disqualifier.

(b) Picture target presenting no lethal threat or a “no-shoot” target.

1 Any projectile directed at the target, whether the projectile fails to print or prints anywhere on the picture or target backing, is a disqualifier.

(c) Hallway picture target presenting a lethal threat.

1 A projectile printing anywhere within the outline of the human form pictured must be scored as a hit.

2 A projectile printing anywhere outside the outline of the human form, including on the target backing, must be scored as a miss.

(2) Scoring procedural errors. One procedural error will be assessed for each occurrence of the following:

(a) failure to maintain a constant speed (pace) throughout the course, which permits the accurate engagement of “shoot” targets;

- (b) failure to engage appropriate targets on the move;
- (c) failure to perform the correct crossover maneuver in a room;
- (d) failure to maintain the correct low-ready position when required (i.e., acquiring a sight picture when the firearm should be in the low-ready position);
- (e) failure to transition to the handgun without hesitation whenever a transition is required;
- (f) failure to correctly engage “shoot” targets masked by a prohibited strike zone with the appropriate number of presses. The SMG/rifle, fired on automatic, requires two presses and four hits to the center mass and one press and two hits to the head. The SMG/rifle, fired on semiautomatic, requires two presses and two hits to center mass and one press one hit to the head. The handgun requires one press and one hit to the head;
- (g) expending more than two rounds in a single burst of fire with the SMG/rifle, while firing on automatic;
- (h) failure to set up on the appropriate side of an open door or failing to correctly perform all associated actions for the given door situation;
- (i) failure to set up on the appropriate side of a closed door or failing to correctly perform all associated actions for the given door situation;
- (j) failure to deploy a diversionary device from the appropriate side of a door or failing to perform all associated device deployment actions for the given door situation;
- (k) failure to conduct the appropriate door entry technique (criss-cross or button-hook) for the given door situation;
- (l) failure to correctly move through a door without hesitation;
- (m) failure to immediately clear and move to the near corner;
- (n) failure to run the second wall;
- (o) failure to correctly clear the room to the center;
- (p) failure to correctly announce status and intention; and/or

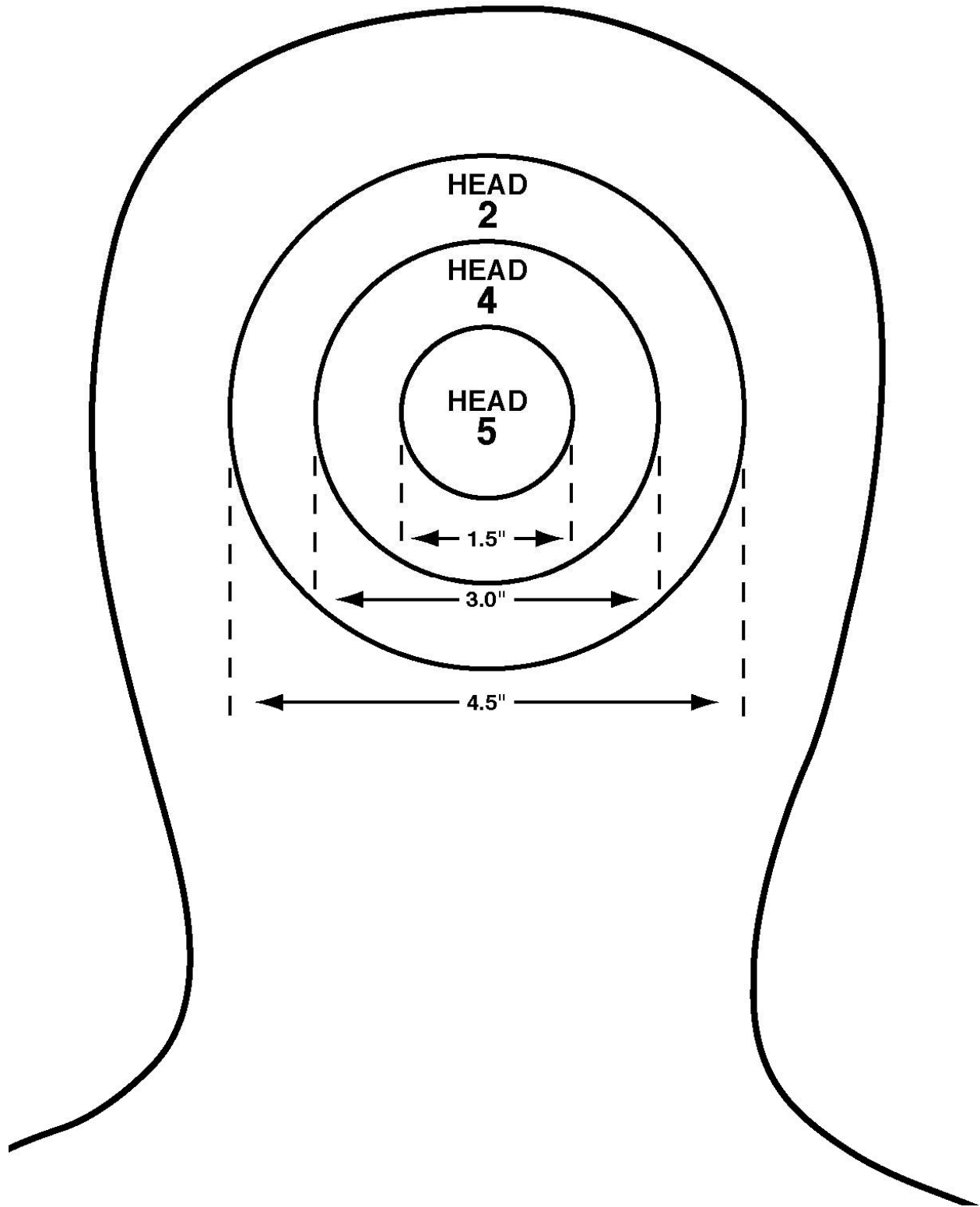
- (q) failure to properly demonstrate correct pointman actions and target engagement requirements.

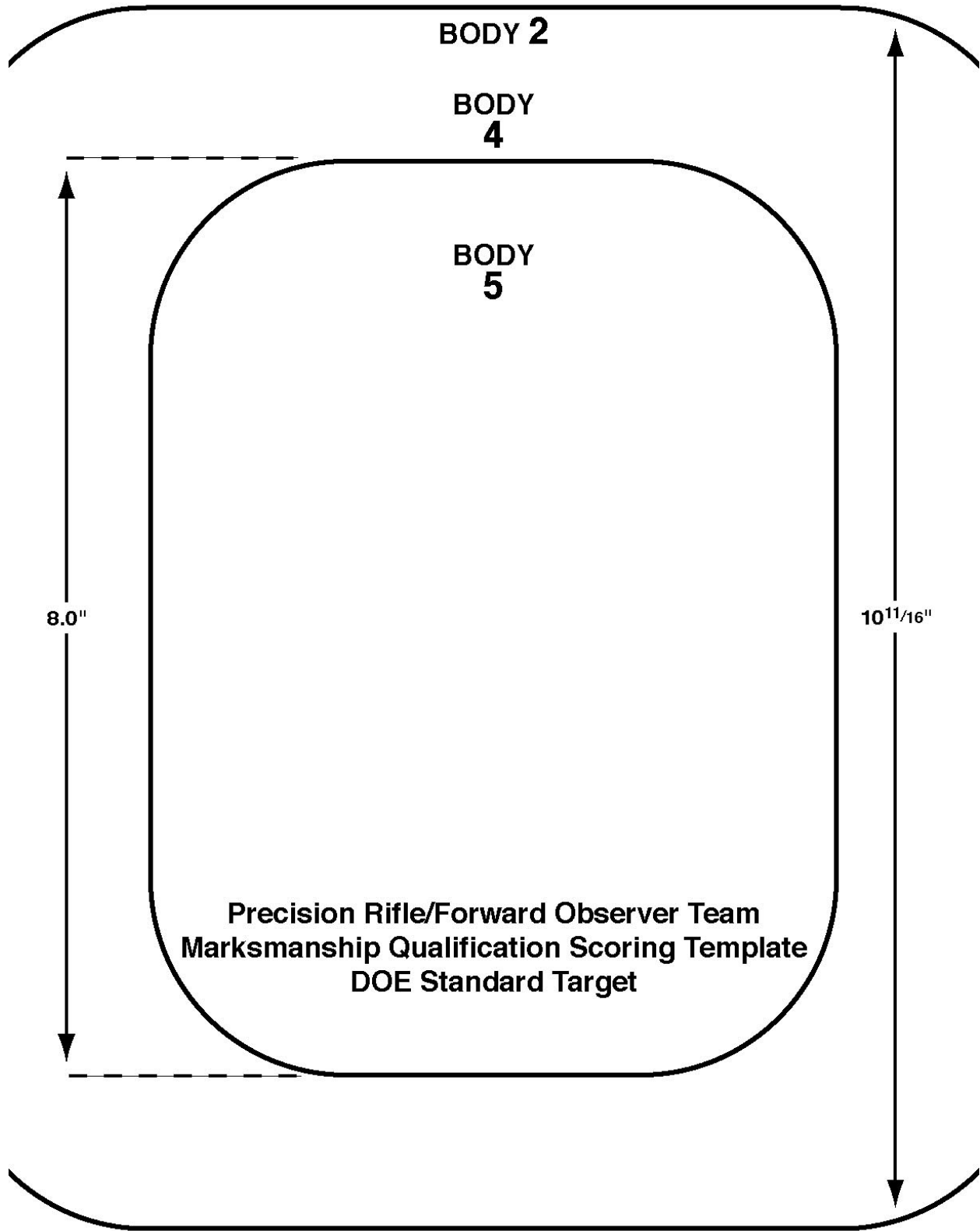
NOTE: Shooters accumulating more than five procedural errors must fail to qualify.

APPENDIX C-4 - PRECISION RIFLE QUALIFICATION COURSE SCORING TEMPLATES

1. HEAD SCORING TEMPLATE. The Head Scoring Template for the Precision Rifle Qualification Courses consists of three concentric rings placed within the existing circle scoring area in the head of the U.S. Department of Energy (DOE) Standard Target (see Figure 1).
 - a. The first (outermost) ring of the scoring template is approximately 0.75 inch wide with a point value of 2.
 - b. The second (inner) ring of the scoring template is approximately 0.75 inch with a point value of 4.
 - c. The innermost circle of the scoring template is approximately 1.75 inches in diameter with a point value of 5.

2. CENTER OF MASS SCORING TEMPLATE. The Center of Mass Scoring Template for the Precision Rifle Qualification Courses consists of an inner scoring ring/area (the same shape as the center mass section of the DOE Standard Target) placed inside the existing center mass section of the DOE Standard Target (see Figure 2).
 - a. The inner scoring ring measures approximately 6 inches horizontally and 8 inches vertically.
 - b. The scoring template is positioned in the center of the center mass area approximately 1.75 inches from the left and right sides of the center mass area, and approximately 1.5 inches from the top and bottom of the center mass area.
 - c. The area outside the center mass area has a point value of 2.
 - d. The second (inner) area on the scoring template has a point value of 4.
 - e. The innermost area of the scoring template has a point value of 5.





APPENDIX C-5 - PRACTICAL SHOOTING COURSES

1. INTRODUCTION. The practical shooting courses described in this Appendix are additional non-mandatory qualification courses designed to exercise and evaluate a shooter's ability to perform required marksmanship fundamentals while experiencing stress from doing non-routine tasks (e.g., tactically moving, pivoting, engaging multiple targets, using available cover, and firing after donning a protective mask).
 - a. The cognizant security authority must determine its own specific tactical requirements (i.e., barrier/fence climbing, and specific no-shoot areas/devices) and incorporate them, if feasible, into these courses. These courses include specific criteria for conduct of the course, but, since range facilities differ from site to site, the courses may be modified to accommodate the safety requirements for each range. Modifications to each course are to be the minimum required to perform the course safely in accordance with the established site range Risk Analysis Report (RAR).
 - b. The practical courses emphasize shooting skills relating to shooter movement, multiple targets, and target identification. These courses address a need to increase the realism of training by requiring armed protective force (PF) personnel to move, shoot, reload, take cover, communicate, and use equipment such as masks and night vision goggles in situations that simulate actual security emergencies.
 - c. Consistent with local collective bargaining agreements and other site considerations, cognizant security authorities are authorized to substitute selected practical shooting courses to be fired for qualification during one of the semi-annual qualifications periods, in lieu of the standard, applicable firearms qualification courses. Should a cognizant security authority voluntarily choose to use these courses, the requirements below must be met.
 - (1) Annually (at least every 12 months), each armed PF member will be required to qualify on the appropriate standard Daylight and Reduced Lighting courses contained in Section C of this Manual, for his or her assigned firearms.
 - (2) For the other required semi-annual (at least every 6 months) qualification, each armed PF member must fire three of the practical courses, two Daylight and one Reduced Lighting, for his or her assigned firearm. Failure to qualify on a practical shooting qualification course must result in a short remedial training session covering specific techniques. One additional attempt to qualify must be provided following the remedial training session. In the event that the PF member fails the second attempt, the standard qualification course, Daylight or Reduced Lighting, whichever is applicable, must be used in its entirety to determine qualification.

- d. The particular targets used in each course will also be dictated by range facilities and Safety Analysis Reviews. If a cognizant security authority deviates from any specified target (i.e., paper instead of steel) then the scoring must be changed to reflect the target engagement requirements (i.e., steel targets are hit once; paper targets are hit either twice or there is a failure drill).
2. PRACTICAL SHOOTING COURSE ADJUSTMENTS. The practical shooting courses may be modified to introduce a firearm malfunction during the course of fire. It must be noted that if malfunctions are introduced into a timed course, an additional amount of time must be added to compensate for the malfunction.
 - a. If, during any course of fire, a shooter experiences a malfunction and attempts to clear or clears the malfunction, the shooter should be allowed to continue the course of fire. If the malfunction is such that the shooter requires assistance in the clearing, the shooter must be allowed to repeat the course.
 - b. The courses may be conducted as individual courses of fire or may be combined to test various skills required for a PF member to be successful against a lethal threat. The individual mission generally will dictate which of these courses are most appropriate to test individual skills and abilities.
 3. PRACTICAL SHOOTING COURSE SAFETY. The practical shooting courses must be conducted in accordance with all firearms safety instructions or notes contained in this Manual, DOE O 440.1A, *Worker Protection Management for DOE Federal and Contractor Employees*, and such site-specific safety instructions as may apply. Limitations on range use contained in the range risk analysis must be observed and all practical shooting courses must be conducted with the required instructor-to-shooter ratio. For all practical shooting courses, the firearm must be loaded in the standard duty configuration and carried in the standard duty carry.
 - a. Shooting on the Move.
 - (1) Walking surfaces on the range must be kept as free as practicable of slipping and tripping hazards. Participants must wear duty footwear.
 - (2) Muzzle control is especially critical during shooting on the move. Instructors must ensure that the shooter keeps the muzzle pointed in a safe direction at all times.
 - (3) The trigger finger must stay off the trigger until the sights are on the target.

b. Shooting at Moving Targets.

- (1) Courses of fire using moving targets must be designed so the limitations of authorized fan of fire are not exceeded.
- (2) Moving targets must be positioned so that they are not available to the shooter when the line of fire would exceed the authorized fan of fire.

c. Deploying from Vehicles.

- (1) Muzzle control is especially critical when deploying from vehicles. Instructors must ensure that the shooter keeps the muzzle pointed in a safe direction at all times.
- (2) Instructors must ensure that the shooter does not place the trigger finger on the trigger until the sights are on the target.
- (3) Walking surfaces on the range must be kept as free as practicable of slipping and tripping hazards.

d. Shooter Movement Safety.

- (1) Students will receive the standard firearms safety briefing.
- (2) A description of the course to be fired will be shown and explained in detail.
- (3) Students will walk through the stages of the course, and range instructors will explain each position of fire.
- (4) Persons other than the shooter and range instructors will remain in a designated area to the rear of the course.
- (5) Students will load initially on command of the range instructor.
- (6) Stages of fire that require reloading will be without command while students maintain the firearm safely and pointing downrange.
- (7) Students will move from position to position with the firearm holstered or the firearm on safe, finger off the trigger, unless the course dictates firing at a target while moving.
- (8) Firearms will be fired only after the student is in position and ready to engage a designated target.

4. DOE PRACTICAL SHOOTING COURSES. The following describes each of the courses. Schematics of the layouts are provided at the end of the Appendix.
 - a. Course Number 1.
 - (1) Objective. This course is designed to evaluate and test the shooter's ability to demonstrate the proper method to draw the handgun, engage multiple targets, and properly reload.
 - (2) Safety. Safety precautions pertaining to this course of fire will be in accordance with site-specific firearms safety procedures.
 - (3) Course Description.
 - (a) The shooter will load and holster the handgun and make ready for live fire.
 - (b) On command, the shooter will draw and engage each target with one round each, reload, and engage each target again with one round each.
 - (c) Upon completion of the course of fire, the shooter will make the firearm safe.
 - (4) Options. This course may be run during dim-light or dark-light conditions. For the type of firearm, the use of site-specific protective equipment (i.e., respirator or body armor) will be at the discretion of the range master. Under dark-light conditions flashlights will be in the ready position with the handgun holstered.
 - (5) Scoring.
 - (a) If the DOE-15 target is used, the inner ring is 5 points, the middle ring is 4 points, and the outer ring is 3 points.
 - (b) If the National Rifle Association (NRA) B-27 target is used, hits inside the 8 ring are 5 points, hits inside the 7 ring are 4 points, and hits on the silhouette outside the 7 ring are 3 points.
 - (c) If the IPSC target is used, hits inside the A zone are 5 points, hits inside the C zone are 4 points, and hits inside the B or D zones are 3 points.
 - (d) Maximum rounds: 12
 - (e) Maximum score: 60

- (f) Minimum score: 70 percent = 42; 80 percent = 48
- (g) Maximum time: 18 seconds – pistol
20 seconds – revolver

b. Course Number 2.

- (1) Objective. This course is designed to evaluate and test the shooter's ability to properly execute the failure drill with the handgun.
- (2) Safety. Safety precautions pertaining to this course of fire will be in accordance with site-specific firearms safety procedures.
- (3) Course Description.
 - (a) The shooter will load and holster the handgun.
 - (b) On command, from Box A, the shooter will draw and fire the standard defensive response (two presses center mass) on each target followed by a failure drill (one press to the head) on each target.
 - (c) The shooter will reload and holster after each course of fire.
 - (d) This course of fire will be fired three times by each shooter.
 - (e) Upon completion of the last course of fire, the shooter will make the firearm safe.
- (4) Options. This course may be run during dim or dark-light conditions. The type of firearm and the use of site-specific protective equipment (i.e., respirator or body armor) will be at the discretion of the range master. Under dark-light conditions flashlights will be in the ready position with the handgun holstered.
- (5) Scoring.
 - (a) If the DOE-15 target is used, hits inside the inner ring are 5 points, the middle ring are 4 points, and the outer ring are 3 points.
 - (b) If the NRA B-27 target is used, hits inside the 8 ring are 5 points, inside the 7 ring are 4 points, and hits on the silhouette outside the 7 ring are 3 points.

- (c) If the IPSC target is used, hits inside the A zone are 5 points, hits inside the C zone are 4 points, and hits inside the B or D zones are 3 points.
 - (d) Maximum rounds: 18
 - (e) Maximum score: 90
 - (f) Minimum score: 70 percent = 63; 80 percent = 72
 - (g) Maximum time: 12 seconds per iteration
- c. Course Number 3.
- (1) Objective. This course is designed to evaluate and test the shooter's ability to fire with the weak hand.
 - (2) Safety. Safety precautions pertaining to this course of fire will be in accordance with site-specific firearms safety procedures.
 - (3) Course Description.
 - (a) The shooter will load and holster the handgun.
 - (b) On command, from Box A, the shooter will draw and transfer the firearm to the weak hand and assume a low-ready position.
 - (c) On command, the shooter will engage each target with 1 round each using the weak hand.
 - (d) After engaging each target with 1 round, the shooter will return to the low-ready position.
 - (e) The shooter will repeat this drill 4 times and fire a total of 12 rounds, reloading as necessary.
 - (f) Upon completion of the course of fire, the shooter will make the firearm safe.
 - (4) Options. This course may be run during dim-light conditions but may not be fired under dark-light conditions. The type of firearm and the use of site-specific protective equipment (i.e., respirator or body armor) will be at the discretion of the range master.
 - (5) Scoring.

- (a) If the DOE-15 target is used, hits inside the inner ring are 5 points, the middle ring are 4 points, and the outer ring are 3 points.
 - (b) If the NRA B-27 target is used, hits inside the 8 ring are 5 points, inside the 7 ring are 4 points, and hits on the silhouette outside the 7 ring are 3 points.
 - (c) If the IPSC target is used, hits inside the A zone are 5 points, hits inside the C zone are 4 points, and hits inside the B or D zone are 3 points.
 - (d) Maximum rounds: 12
 - (e) Maximum score: 60
 - (f) Minimum score: 70 percent = 42; 80 percent = 48
 - (g) Maximum time: 6 seconds per iteration
- d. Course Number 4.
- (1) Objective. This course is designed to evaluate and test the shooter's ability to demonstrate the proper kneeling and prone firing positions.
 - (2) Safety. Safety precautions pertaining to this course of fire will be in accordance with site-specific firearms safety procedures.
 - (3) Course Description.
 - (a) The shooter will load and holster the handgun and make ready for live fire.
 - (b) The shooter will begin seated in a vehicle with firearm holstered, door closed, seat belt secured, and hands on the steering wheel. The shooter may also start in a start box 20 yards from the low wall.
 - (c) On command, the shooter will dismount from the vehicle, run to the low wall, assume kneeling position, and engage targets T1 and T2 with two rounds each, using proper cover.
 - (d) The shooter will then assume the prone position and engage target T3 with two rounds.
 - (e) After completion of the course, the shooter will make the firearm safe.

(4) Scoring.

- (a) If the DOE-15 target is used, hits inside the inner ring are 5 points, the middle ring are 4 points, and the outer ring are 3 points.
- (b) If the NRA B-27 target is used, hits inside the 8 ring are 5 points, inside the 7 ring are 4 points, and hits on the silhouette outside the 7 ring are 3 points.
- (c) If the IPSC target is used, hits inside the A zone are 5 points, hits inside the C zone are 4 points, and hits inside the B or D zones are 3 points.
- (d) Maximum rounds: 6
- (e) Maximum score: 30
- (f) Minimum score: 70 percent = 21; 80 percent = 24
- (g) Maximum time: 24 seconds (20 seconds if a box is used)

e. Course Number 5.

- (1) Objective. This course is designed to evaluate and test the shooter's ability to present the firearm to the targets and accurately engage each target while utilizing cover from the selected barricade position.
- (2) Safety. Safety precautions pertaining to this course of fire will be in accordance with site-specific firearms safety procedures.
- (3) Course Description.
 - (a) The shooter will load and holster the handgun.
 - (b) The shooter begins in Box A, standing and facing the targets with hands relaxed at the shooter's sides.
 - (c) On command, the shooter will draw and engage targets T1, T2, and T3 with one round each. The shooter will then move to Box B, ensuring the trigger finger is outside the trigger guard and alongside the frame. The shooter will ensure the muzzle is pointed downrange during all movement. Reloading will be done as needed throughout the course.

- (d) At Box B, the shooter will engage targets T4, T5, and T6 with one round each from either side of the barricade. The shooter will use the barricade as cover.
- (e) The shooter will then move to Box C, and will engage targets T7 and T8 with two rounds each. The shooter will use the barricade as cover while firing through the 1-foot top port.
- (4) Options. This course may be run during dim-light conditions. For the type of firearm, the use of site-specific protective equipment (i.e., respirator or body armor) will be at the discretion of the range master.
- (5) Scoring.
 - (a) If the DOE-15 target is used, hits inside the inner ring are 5 points, the middle ring are 4 points, and the outer ring are 3 points.
 - (b) If the NRA B-27 target is used, hits in the 8 ring are 5 points, hits inside the 7 ring are 4 points, and hits on the silhouette outside the 7 ring are 3 points.
 - (c) If the IPSC target is used, hits inside the A zone are 5 points, hits inside the C zone are 4 points, and hits inside the B or D zone are 3 points.
 - (d) Maximum rounds: 10
 - (e) Maximum score: 50
 - (f) Minimum score: 70 percent = 35; 80 percent = 40
 - (g) Maximum time: 40 seconds
 - (h) Engagement of friendly (no-shoot) targets is an automatic failure.
- f. Course Number 6.
 - (1) Objective. This course is designed to evaluate and test the shooter's ability to pivot, draw, and engage multiple targets.
 - (2) Safety. Safety precautions pertaining to this course of fire will be in accordance with site-specific firearms safety procedures.
 - (3) Course Description.

- (a) The shooter will load and holster the firearm.
 - (b) The shooter will begin in Box A with his or her back to the targets.
 - (c) On command, the shooter will pivot and face the targets, draw the firearm, and engage targets T1, T2, and T3 with one round, each. The shooter will reload and holster.
 - (d) This course will be fired twice.
 - (e) After completion of the course, the shooter will make the firearm safe.
- (4) Options. This course may be run during dim and dark-light conditions. For the type of firearm, the use of site-specific protective equipment (i.e., respirator or body armor) will be at the discretion of the range master. Under dark-light conditions flashlights will be in the ready position with the handgun holstered.
- (5) Scoring.
- (a) If the DOE-15 target is used, hits inside the inner ring are 5 points, the middle ring are 4 points, and the outer ring are 3 points.
 - (b) If the NRA B-27 target is used, hits inside the 8 ring are 5 points, inside the 7 ring are 4 points, and hits on the silhouette outside the 7 ring are 3 points.
 - (c) If the IPSC target is used, hits inside the A zone are 5 points, hits in the C zone are 4 points, and hits inside the B or D zones are 3 points.
 - (d) Minimum rounds: 6
 - (e) Maximum score: 30
 - (f) Minimum score: 70 percent = 21; 80 percent = 24
 - (g) Maximum time: 6 seconds
- g. Course Number 7.
- (1) Objective. This course is designed to evaluate and test the shooter's ability to draw and engage targets from the prone firing position.

- (2) Safety. Safety precautions pertaining to this course of fire will be in accordance with site-specific firearms safety procedures.
- (3) Course Description.
 - (a) On command, the shooter will load and holster the handgun.
 - (b) The shooter will start facing the targets.
 - (c) On command, the shooter will draw, go to the prone position, and engage all targets through the lower window in the barricade.
 - (d) The shooter will engage targets T1-T4 with one round, each.
 - (e) The shooter will reload and holster after each course of fire.
 - (f) This course of fire will be fired twice by each shooter.
 - (g) After completion of the course, the shooter will make the firearm safe.
- (4) Scoring.
 - (a) If the DOE-15 target is used, hits inside the inner ring are 5 points, the middle ring are 4 points, and the outer ring are 3 points.
 - (b) If the NRA B-27 target is used, hits inside the 8 ring are 5 points, inside the 7 ring are 4 points, and hits on the silhouette outside the 7 ring are 3 points.
 - (c) If the IPSC target is used, hits inside the A zone are 5 points, hits inside the C zone are 4 points, and hits inside the B or D zones are 3 points.
 - (d) Maximum rounds: 8
 - (e) Maximum score: 40
 - (f) Minimum score: 70 percent = 28; 80 percent = 32
 - (g) Maximum time: 20 seconds
 - (h) Engagement of friendly (no-shoot) targets is an automatic failure.

h. Course Number 8.

- (1) Objective. This course is designed to evaluate and test the shooter's ability to engage multiple targets, move obstacles, and reload firearms.
- (2) Safety. Safety precautions pertaining to this course of fire will be in accordance with site-specific firearms safety procedures.
- (3) Course Description.
 - (a) The shooter will load and holster the firearm.
 - (b) The shooter will be positioned 20 yards from the doorway.
 - (c) On command, the shooter will run to the open doorway and knock or push the no-shoot target out of the way with his or her weak hand.
 - (d) The shooter will then draw and engage targets T1 through T4 with one round, each. The shooter must conduct a speed reload before engaging target T4. This speed reload may be conducted at any time between targets T1 and T4. The shooter must use the door frame as a barricade or as cover.
 - (e) The shooter will not enter the doorway.
 - (f) This course will be fired twice.
 - (g) After the completion of the course of fire, the shooter will make the firearm safe.
- (4) Options. This course may be run during low-light conditions. For the type of firearm, the use of site-specific protective equipment (i.e., respirator or body armor) will be at the discretion of the range master.
- (5) Scoring.
 - (a) If the DOE-15 target is used, hits inside the inner ring are 5 points, the middle ring are 4 points, and the outer ring are 3 points.
 - (b) If the NRA B-27 target is used, hits inside the 8 ring are 5 points, inside the 7 ring are 4 points, and hits on the silhouette outside the 7 ring are 3 points.

- (c) If the IPSC target is used, hits inside the A zone are 5 points, hits inside the C zone are 4 points, and hits inside B or D zone are 3 points.
 - (d) Maximum rounds: 8
 - (e) Maximum score: 40
 - (f) Minimum score: 70 percent = 28; 80 percent = 32
 - (g) Maximum time: 16 seconds
- i. Course Number 9.
- (1) Objective. This course is designed to evaluate and test the shooter's ability to effectively use a barricade for cover and demonstrate the proper standing and kneeling barricade positions.
 - (2) Safety. Safety precautions pertaining to this course of fire will be in accordance with site-specific firearms safety procedures.
 - (3) Course Description.
 - (a) On command, the shooter will load the handgun with the prescribed site duty load and holster.
 - (b) The shooter will begin this course 50 feet from the barricade.
 - (c) On command, the shooter will run to Box A and draw the firearm.
 - (d) The shooter will engage targets T1, T2, and T3 from Position 1, the right-side standing barricade position, with one round, each.
 - (e) The shooter will then move to Position 2, the right-side kneeling barricade, and engage T1, T2, and T3 with one round each.
 - (f) The shooter will then reload and move to Position 3, left-hand standing position, and engage targets T1, T2, and T3 with one round, each.
 - (g) The shooter will then move to Position 4, left-hand kneeling position, and engage targets T1, T2, and T3 with one round, each.
 - (h) After completion of the course, the shooter will make the firearm safe.

- (4) Options. This course may be run during dim-light conditions. The type of firearm and the use of site-specific protective equipment (i.e., respirator or body armor) will be at the discretion of the range master.
- (5) Scoring.
 - (a) If the DOE-15 target is used, hits inside the inner ring are 5 points, the middle ring are 4 points, and the outer ring are 3 points.
 - (b) If the NRA B-27 target is used, hits inside the 8 ring are 5 points, inside the 7 ring are 4 points, and hits on the silhouette outside the 7 ring are 3 points.
 - (c) If the IPSC target is used, hits inside the A zone are 5 points, hits inside the C zone are 4 points, and hits inside the B or D zones are 3 points.
 - (d) Maximum rounds: 12
 - (e) Maximum score: 60
 - (f) Minimum score: 70 percent = 42; 80 percent = 48
 - (g) Maximum time: 35 seconds
 - (h) Engagement of friendly (no-shoot) targets is an automatic failure.

j. Course Number 10.

- (1) Objective. This course is designed to evaluate and test the shooter's ability to draw, identify, and engage hostile targets accurately with either hand.
- (2) Safety. Safety precautions pertaining to this course of fire will be in accordance with site-specific firearms safety procedures.
- (3) Course Description.
 - (a) The shooter will load and holster the handgun.
 - (b) The shooter will start at Box A. On command, the shooter will draw and engage targets T1, T2, and T3 with the strong hand only, in any order, with one round, each. The shooter will then reload and engage targets T1, T2, and T3 with the weak hand only, in any order, with one round, each.

- (c) This course will be fired twice by each shooter.
- (d) After completion of the course of fire, the shooter will make the handgun safe.
- (4) Options. This course may be run during dim-light conditions. The type of firearm and the use of site-specific protective equipment (i.e., respirator or body armor) will be at the discretion of the range master.
- (5) Scoring.
 - (a) If the DOE-15 target is used, hits inside the inner ring are 5 points, the middle ring are 4 points, and the outer ring are 3 points.
 - (b) If the NRA B-27 target is used, hits inside the 8 ring are 5 points, inside the 7 ring are 4 points, and hits on the silhouette outside the 7 ring are 3 points.
 - (c) If the IPSC target is used, hits inside the A zone are 5 points, hits inside the C zone are 4 points, and hits inside the B or D zones are 3 points.
 - (d) Maximum rounds: 12
 - (e) Maximum score: 60
 - (f) Minimum score: 70 percent = 42; 80 percent = 48
 - (g) Maximum time: 15 seconds
 - (h) Engagement of friendly (no-shoot) targets is an automatic failure.
- k. Course Number 11.
 - (1) Objective. This course is designed to evaluate and test the shooter's ability to draw and engage targets accurately with the strong and weak hand.
 - (2) Safety. Safety precautions pertaining to this course of fire will be in accordance with site-specific firearms safety procedures.
 - (3) Course Description.
 - (a) The shooter will load and holster the handgun.
 - (b) The shooter will start at the 25-yard line and on command assume a kneeling position and engage each target with one round.

- (c) The shooter will then move to the 15-yard line and engage each target with one round, reload and engage each target with one more round. The shooter will reload.
 - (d) The shooter will then move to the 10-yard line and engage targets T1, T2, and T3 with one round, each.
 - (e) The shooter will then move to the 7-yard line, switch to the weak hand, and engage targets T1, T2, and T3 with one round, each.
 - (f) Each shooter will fire this course twice.
 - (g) After completion of the course of fire, the shooter will make the firearm safe.
- (4) Options. This course may be run during dim-light conditions. The type of firearm and the use of site-specific protective equipment (i.e., respirator or body armor) will be at the discretion of the range master.
- (5) Scoring.
- (a) If the DOE-15 target is used, hits inside the inner ring are 5 points, the middle ring are 4 points, and the outer ring are 3 points.
 - (b) If the NRA B-27 target is used, hits inside the 8 ring are 5 points, hits inside the 7 ring are 4 points, and hits on the silhouette outside the 7 ring are 3 points.
 - (c) If the IPSC target is used, hits inside the A zone are 5 points, hits inside the C zone are 4 points, and hits inside the B or D zones are 3 points.
 - (d) Minimum rounds: 30
 - (e) Maximum score: 150
 - (f) Minimum score: 70 percent = 105; 80 percent = 120
 - (g) Maximum Time: 45 seconds
1. Course Number 12.
- (1) Objective. This course is designed to evaluate and test the shooter's ability to engage decisionmaking targets accurately and to engage each target while shooting on the move.

- (2) Safety. Safety precautions pertaining to this course of fire will be in accordance with site-specific firearms safety procedures.
- (3) Course Description.
 - (a) The shooter will load and holster the handgun.
 - (b) The shooter will start in Box A, and, on command, the shooter will draw and engage targets T1, T2, and T3 with one round, each.
 - (c) Shooter will move along the charge line and engage targets T4, T5, and T6 with one round, each, reloading as necessary.
 - (d) The shooter will move to Box B and engage targets T7 and T8 with the standard defensive response, followed by a failure drill.
 - (e) After engaging targets T7 and T8, the shooter will make the firearm safe.
- (3) Options. This course may be run during dim-light conditions. The type of firearm and use of site-specific protective equipment (i.e., respirator or body armor) will be at the discretion of the range master.
- (4) Scoring.
 - (a) If the DOE-15 target is used, hits inside the inner ring are 5 points, the middle ring are 4 points, and the outer ring are 3 points.
 - (b) If the NRA B-27 target is used, hits inside the 8 ring are 5 points, hits inside the 7 ring are 4 points, and hits on the silhouette outside the 7 ring are 3 points.
 - (c) If the IPSC target is used, hits inside the A zone are 5 points, hits inside the C zone are 4 points, and hits inside the B or D zones are 3 points.
 - (d) Maximum rounds: 12
 - (e) Maximum score: 60
 - (f) Minimum score: 70 percent = 63; 80 percent = 48
 - (g) Maximum time: 30 seconds

m. Course Number 13.

- (1) Objective. This course is designed to evaluate and test the shooter's ability to identify and engage hostile targets.
- (2) Safety. Safety precautions pertaining to this course of fire will be in accordance with site-specific firearms safety procedures.
- (3) Course Description.
 - (a) The shooter will load and holster the handgun.
 - (b) The shooter begins in Box A. On command, the shooter will draw and engage targets T1 and T2 with two rounds each.
 - (c) Keeping the finger off the trigger, straight alongside the frame, firearm in a low-ready position, and pointed downrange, the shooter will move to Box B and engage target T3 with two rounds. The shooter will reload as necessary.
 - (d) The shooter then moves to Box C and engages target T4 with two rounds.
 - (e) After completion of the course, the shooter will make the firearm safe.
- (4) Options. This course may be run during dim-light and dark-light conditions. The type of firearm and the use of site-specific protective equipment (i.e., respirator or body armor) will be at the discretion of the range master.
- (5) Scoring.
 - (a) If the DOE-15 target is used, hits inside the inner ring are 5 points, the middle ring are 4 points, and the outer ring are 3 points.
 - (b) If the NRA B-27 target is used, hits inside the 8 ring are 5 points, hits inside the 7 ring are 4 points, and hits on the silhouette outside the 7 ring are 3 points.
 - (c) The IPSC target is used, hits inside the A zone are 5 points, hits inside the C zone are 4 points, and hits inside the B or D zones are 3 points.
 - (d) Maximum rounds: 8
 - (e) Maximum score: 40

- (f) Minimum score: 70 percent = 28; 80 percent = 32
 - (g) Maximum time: 20 seconds
 - (h) Engagement of friendly (no-shoot) targets is an automatic failure.
- n. Course Number 14.
- (1) Objective. This course is designed to evaluate and test the shooter's ability to draw, fire accurately, and conduct a speed reload.
 - (2) Safety. Safety precautions pertaining to this course of fire will be in accordance with site-specific firearms safety procedures.
 - (3) Course Description.
 - (a) The shooter will load and holster the handgun.
 - (b) The shooter will begin in Box A. On command, the shooter will draw and engage targets T1, T2, and T3 with one round, each.
 - (c) After engaging target T3 with 1 round, the shooter will move to Box B.
 - (d) At Box B, the shooter will assume a kneeling position and engage targets T4, T5, and T6 with one round, each and conduct a speed reload while moving to Position C.
 - (e) After moving to Position C, the shooter will engage targets T7, T8, and T9 with one round, each.
 - (f) This course will be fired twice by each shooter.
 - (g) After the completion of the course of fire, the shooter will make the firearm safe.
 - (4) Options. This course may be run during low-light conditions. For the type of firearm, the use of site-specific protective equipment (i.e., respirator or body armor) will be at the discretion of the instructor.
 - (5) Scoring.
 - (a) If the DOE-15 target is used, hits inside the inner ring are 5 points, the middle ring are 4 points, and the outer ring 3 points.

- (b) If the NRA B-27 target is used, hits inside the 8 ring are 5 points, hits inside the 7 ring are 4 points, and hits on the silhouette outside the 7 ring are 3 points.
 - (c) If the IPSC target is used, hits inside the A zone are 5 points, hits inside the C zone are 4 points, and hits in the B or D zones are 3 points.
 - (d) Maximum rounds: 18
 - (e) Maximum score: 90
 - (f) Minimum score: 70 percent = 63; 80 percent = 72
 - (g) Maximum time: 25 seconds
- o. Course Number 15.
- (1) Objective. This course is designed to evaluate and test the shooter's ability to engage a moving target.
 - (2) Safety. Safety precautions pertaining to this course of fire will be in accordance with site-specific firearms safety procedures.
 - (3) Course Description.
 - (a) The shooter will load and holster the handgun.
 - (b) The shooter will begin in Box A.
 - (c) The shooter will be instructed that when the target begins to move left or right, he or she will draw the firearm and engage the target, firing a minimum of two rounds. The shooter will holster when the target is no longer visible.
 - (d) Each shooter will fire this course three times.
 - (e) After firing six rounds, the shooter will make the firearm safe.
 - (f) The target must not be exposed for more than 6 seconds.
 - (4) Options. This course may be run during dim-light and dark-light conditions. The type of firearm and the use of site-specific protective equipment (i.e., respirator or body armor) will be at the discretion of the range master.

- (5) Scoring.
- (a) If the DOE-15 target is used, hits in the inner ring count 5 points, middle ring 4 points and outer ring 3 points.
 - (b) If the NRA B-27 target is used, hits in the 8 ring and in count 5 points, inside the 7 ring 4 points, and hits on the silhouette outside the 7 ring count 3 points.
 - (c) If the IPSC target is used, hits inside the A zone count 5 points, hits in the C zone count 4 points, hits in B or D zone count 3 points.
 - (d) Maximum rounds: 6
 - (e) Maximum score: 30 points
 - (f) Minimum score: 70 percent = 21; 80 percent = 24
 - (g) Maximum time: 6 seconds per iteration

p. Course Number 16.

- (1) Objective. This course is designed to evaluate and test the shooter's ability to transition to an alternate firearm.
- (2) Safety. Safety precautions pertaining to this course of fire will be in accordance with site-specific firearms safety procedures.
- (3) Course Description.
 - (a) The shooter will make ready for live-fire training with a handgun and duty long gun. The duty long gun will be in the half-load configuration with a four-round magazine.
 - (b) On command, the shooter will engage targets T1 and T2 with the long gun with two rounds, each.
 - (c) The shooter will attempt to engage target T3 with the long gun, which should be empty. The shooter should identify the malfunction and transition to the handgun, engaging target T3 with the standard defensive response, followed by a failure drill.
 - (d) After engaging target T3, the shooter will make the firearms safe.

- (4) Options. This course may be run during dim-light conditions. The type of firearm and the use of site-specific protective equipment (i.e., respirator or body armor) will be at the discretion of the range master.
 - (5) Scoring.
 - (a) If the DOE-15 target is used, hits inside the inner ring are 5 points, the middle ring are 4 points, and the outer ring are 3 points.
 - (b) If the NRA B-27 target is used, hits inside the 8 ring are 5 points, hits inside the 7 ring are 4 points, and hits on the silhouette outside the 7 ring are 3 points.
 - (c) If the IPSC target is used, hits inside the A zone are 5 points, hits inside the C zone are 4 points, and hits inside the B or D zones are 3 points.
 - (d) Maximum rounds: 7
 - (e) Maximum score: 35
 - (f) Minimum score: 70 percent = 22; 80 percent = 28
 - (g) Maximum time: 22 seconds
- q. Course Number 17.
- (1) Objective. This course is designed to evaluate and test the shooter's ability to properly identify and engage targets in dark-light conditions using proper flashlight techniques.
 - (2) Safety. Safety precautions pertaining to this course of fire will be in accordance with site-specific firearms safety procedures.
 - (3) Course Description.
 - (a) The shooter will load the firearm with a duty load and assume a flashlight low-ready position.
 - (b) On command, the shooter will start in Box A, turn on the flashlight, and identify and engage target T1 with two rounds. Doors may be used in line or as shown.

- (c) Shooter will then move to Position B, in flashlight low ready. Once in Position B, the shooter will identify and engage targets T2 and T3 with two rounds, each.
- (d) After firing, the shooter will make the firearm safe.
- (4) Options. This course may be run during dark-light conditions. The type of firearm and the use of site-specific protective equipment (i.e., respirator or body armor) will be at the discretion of the range master.
- (5) Scoring.
 - (a) If the DOE-15 target is used, hits inside the inner ring are 5 points, the middle ring are 4 points, and the outer ring are 3 points.
 - (b) If the NRA B-27 target is used, hits inside the 8 ring are 5 points, inside the 7 ring are 4 points, and hits on the silhouette outside the 7 ring are 3 points.
 - (c) If the IPSC target is used, hits inside the A zone are 5 points, hits inside the C zone are 4 points, and hits inside the B or D zones are 3 points.
 - (d) Maximum rounds: 6
 - (e) Maximum score: 30
 - (f) Minimum score: 70 percent = 21; 80 percent = 24
 - (g) Maximum time: 20 seconds
- r. Course Number 18.
 - (1) Objective. This course is designed to evaluate and test the shooter's ability to safely deploy from a vehicle; fire from the kneeling, prone, and standing firing positions; properly utilize cover and concealment; react to a firearms malfunction; and transition from long gun to handgun.
 - (2) Safety. Safety precautions pertaining to this course of fire will be in accordance with site-specific firearms safety procedures.
 - (3) Course Description.
 - (a) The shooter will load and holster the handgun. The shooter will then half load a long gun with an eight-round magazine.

- (b) The shooter will begin seated in a vehicle with the long gun in the rack or in the normal duty transport position. Both hands must be on the steering wheel with the door shut.
 - (c) On command, the shooter will exit the vehicle. Using the vehicle as cover, the shooter will engage targets T1 and T2, with 2 rounds each from 50 yards.
 - (d) After engaging targets T1 and T2, the shooter will move to Position B, assume a prone firing position and engage target T3 with two rounds.
 - (e) The shooter will then move to Position C and engage target T4 with two rounds from the kneeling position.
 - (f) After engaging target T4, the long gun should be empty. The shooter will move to Position D and attempt to engage target T5. The shooter should identify the malfunction and transition to the handgun (they may sling or ground the long gun). The shooter will then engage targets T5 and T6 with the standard defensive response followed by a failure drill.
 - (g) After completion of the course, the shooter will make the firearms safe.
- (4) Options. This course may be run during dim-light conditions. The type of firearm and the use of site-specific protective equipment (i.e., respirator or body armor) will be at the discretion of the range master.
- (5) Scoring.
- (a) If the DOE-15 target is used, hits inside the inner ring are 5 points, the middle ring are 4 points, and the outer ring are 3 points.
 - (b) If the NRA B-27 target is used, hits inside the 8 ring are 5 points, inside the 7 ring are 4 points, and hits on the silhouette outside the 7 ring are 3 points.
 - (c) If the IPSC target is used, hits inside the A zone are 5 points, hits inside the C zone are 4 points, and hits inside the B or D zones are 3 points.
 - (d) Maximum rounds: 14
 - (e) Maximum score: 70

- (f) Minimum score: 70 percent = 49; 80 percent = 56
 - (g) Maximum time: 75 seconds
- s. Course Number 19.
- (1) Objective. This course is designed to evaluate and test the shooter's ability to reload, transition from long gun to handgun, and shoot from both the left and right barricade positions.
 - (2) Safety. Safety precautions pertaining to this course of fire will be in accordance with site-specific firearms safety procedures.
 - (3) Course Description.
 - (a) The shooter will load and holster the handgun, half load a long gun, and make ready for live fire.
 - (b) The shooter will begin seated at a table. The long gun will be in a rack.
 - (c) On command, the shooter will rise, remove the long gun from the rack, and run 40 yards to Position A.
 - (d) At Position A, the shooter will engage targets T1, T2, and T3 with one round, each, reload, and engage targets T4 and T5 with two rounds, each.
 - (e) The shooter will then make the long gun safe, ground or sling it, and move to Position B.
 - (f) At Position B, the shooter will don the respirator, draw the handgun, and engage targets T6, T7, and T8 with one round, each from the standing right-side barricade position.
 - (g) The shooter will move to left side kneeling barricade and engage target T9 with two rounds.
 - (h) The shooter will then make the firearms safe and holster the handgun.
 - (4) Options. This course may be run during dim-light conditions. The type of firearm and the use of site-specific protective equipment (i.e., respirator or body armor) will be at the discretion of the range master.

(5) Scoring.

- (a) If the DOE-15 target is used, hits inside the inner ring are 5 points, the middle ring are 4 points, and the outer ring are 3 points.
- (b) If the NRA B-27 target is used, hits inside the 8 ring are 5 points, inside the 7 ring are 4 points, and hits on the silhouette outside the 7 ring are 3 points.
- (c) If the IPSC target is used, hits inside the A zone are 5 points, hits inside the C zone are 4 points, and hits inside the B or D zones are 3 points.
- (d) Maximum rounds: 12
- (e) Maximum score: 60
- (f) Minimum score: 70 percent = 42; 80 percent = 48
- (g) Maximum time: 75 seconds

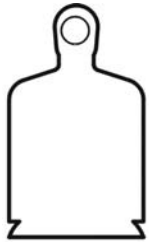
t. Course Number 20.

- (1) Objective. This course is designed to evaluate and test the shooter's ability to engage shoot/no-shoot targets, perform speed reload, clear malfunctions, and carry firearms safely.
- (2) Safety. Safety precautions pertaining to this course of fire will be in accordance with site-specific firearms safety procedures.
- (3) Course Description.
 - (a) The shooter will load and holster the handgun. He/she will then load two long gun magazines with six rounds, each, and half load a duty long gun with one of the six-round magazines.
 - (b) The shooter begins at Position A, and, on command, engages targets T1, T2, T3, T4, and T5 in any order, with one round each. Then the shooter will place one additional round on each target, reloading as necessary.
 - (c) The shooter will make the long gun safe, move to Position B, and engage targets T6, T7, T8, and T9 with one round, each, in any order. After the second round, the long gun should be empty, at which time the shooter should identify the malfunction, make the firearm safe, and either sling it or ground it. The shooter should

transition to the handgun and continue the engagement by following up with one additional round on each target.

- (d) The shooter will then come to the low ready, move to Position C, and engage targets T10, T11, T12, and T13 with one round each, followed by one additional round per target.
 - (e) The shooter will then clear and holster a safe firearm.
- (4) Options. This course may be run during dim-light conditions. The type firearm, and the use of site-specific protective equipment (i.e., respirator or body armor) will be at the discretion of the range master.
- (5) Scoring.
- (a) If the DOE-15 target is used, hits inside the inner ring are 5 points, the middle ring are 4 points, and the outer ring are 3 points.
 - (b) If the NRA B-27 target is used, hits inside the 8 ring are 5 points, inside the 7 ring are 4 points, and hits on the silhouette outside the 7 ring are 3 points.
 - (c) If the IPSC target is used, hits inside the A zone are 5 points, hits inside the C zone are 4 points, and hits inside the B or D zones are 3 points.
 - (d) Maximum rounds: 26
 - (e) Maximum score: 130
 - (f) Minimum score: 70 percent = 91; 80 percent = 104
 - (g) Maximum time: 90 seconds

DOE Practical Shooting Courses Diagrams



DOE Target 15 (other targets may be substituted)



Any black filled box indicates a shooting box. Boxes may be labeled alphabetically.



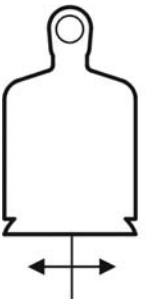
No shoot target (any x indicates a No Shoot target)



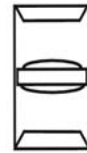
Fault Lines



Barricade



Moving Target



Vehicle



Cross Tie



Trash Can



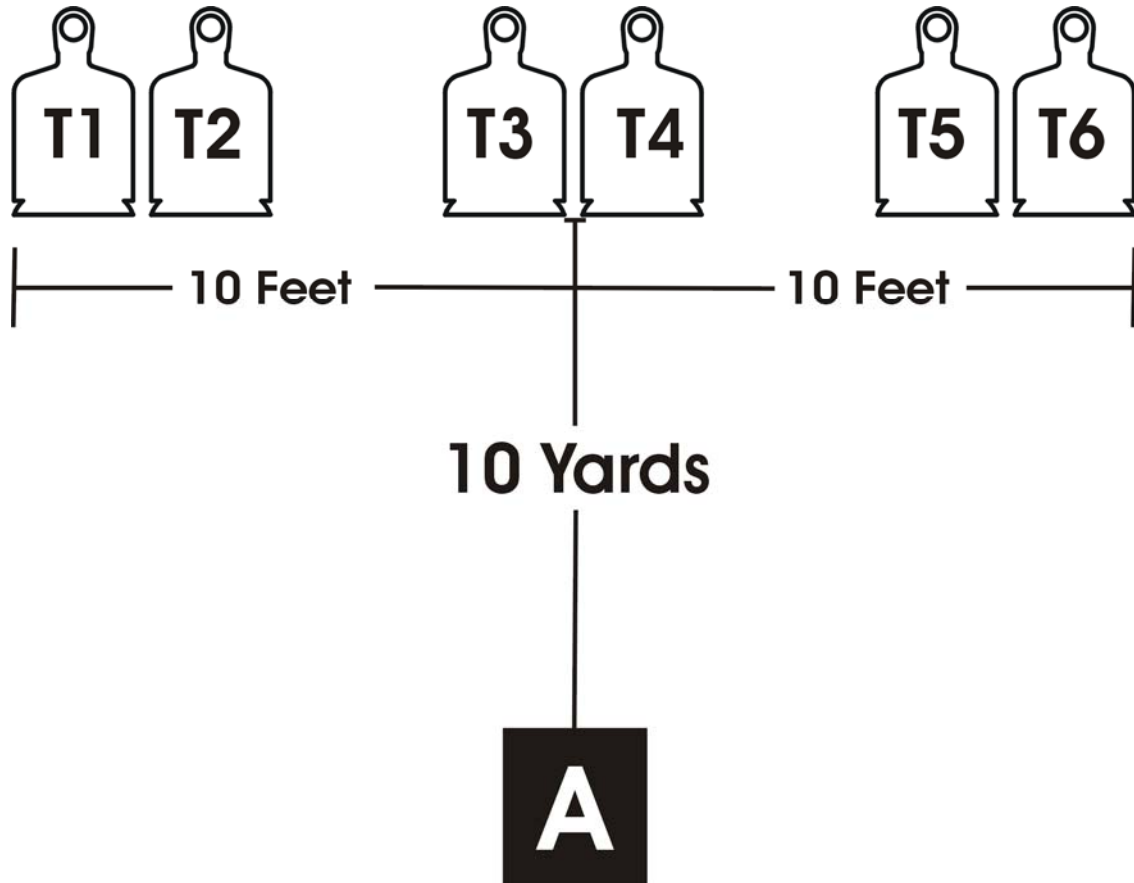
} Black Area indicates the No Shoot area



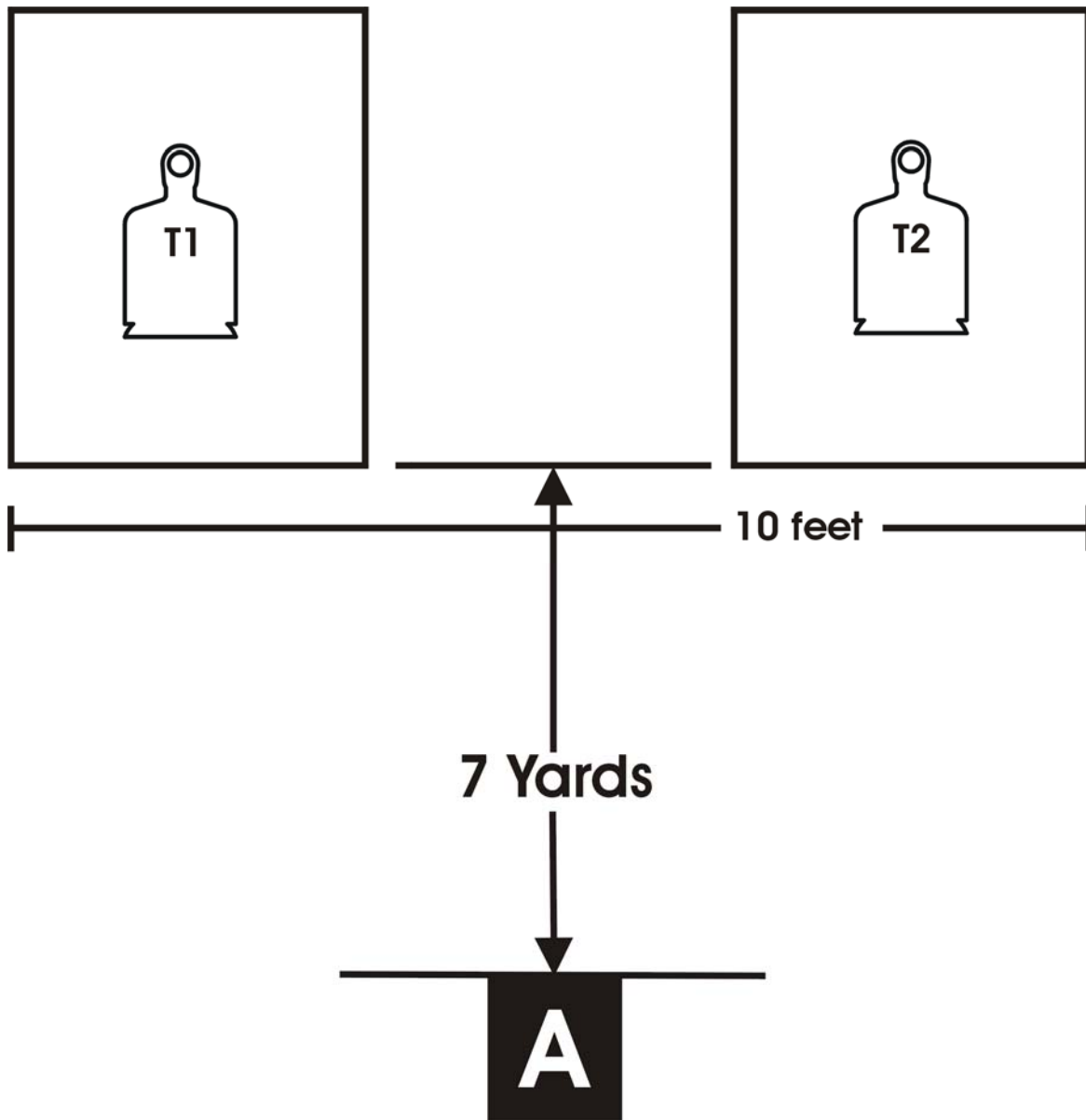
Cone



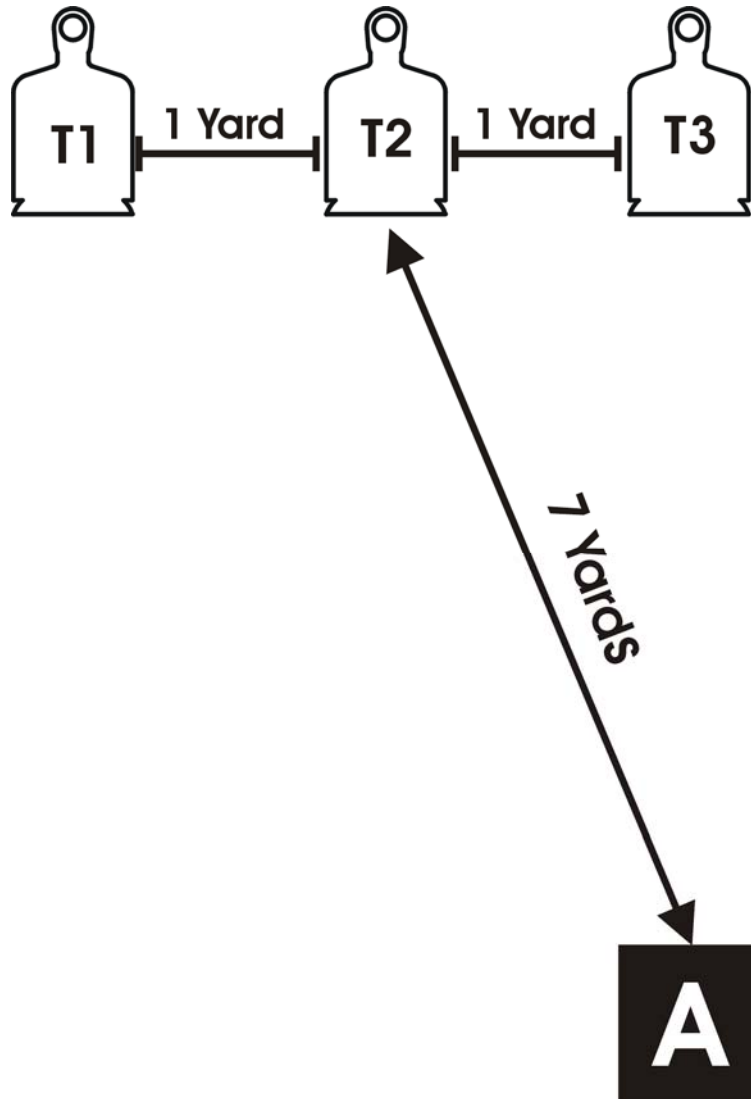
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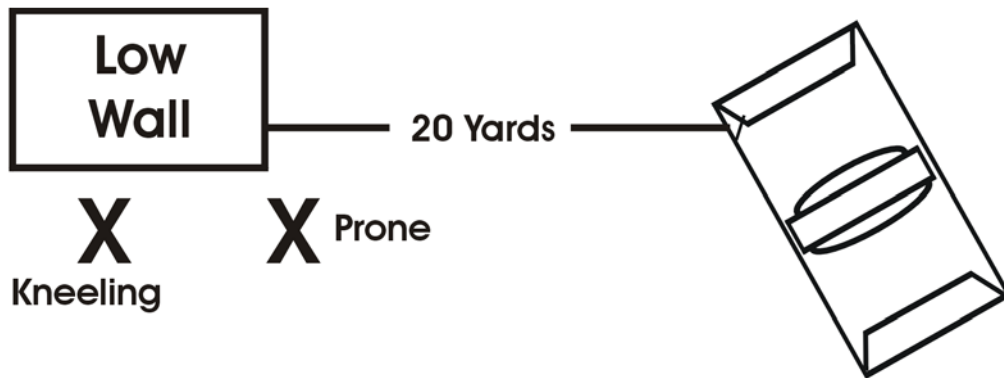
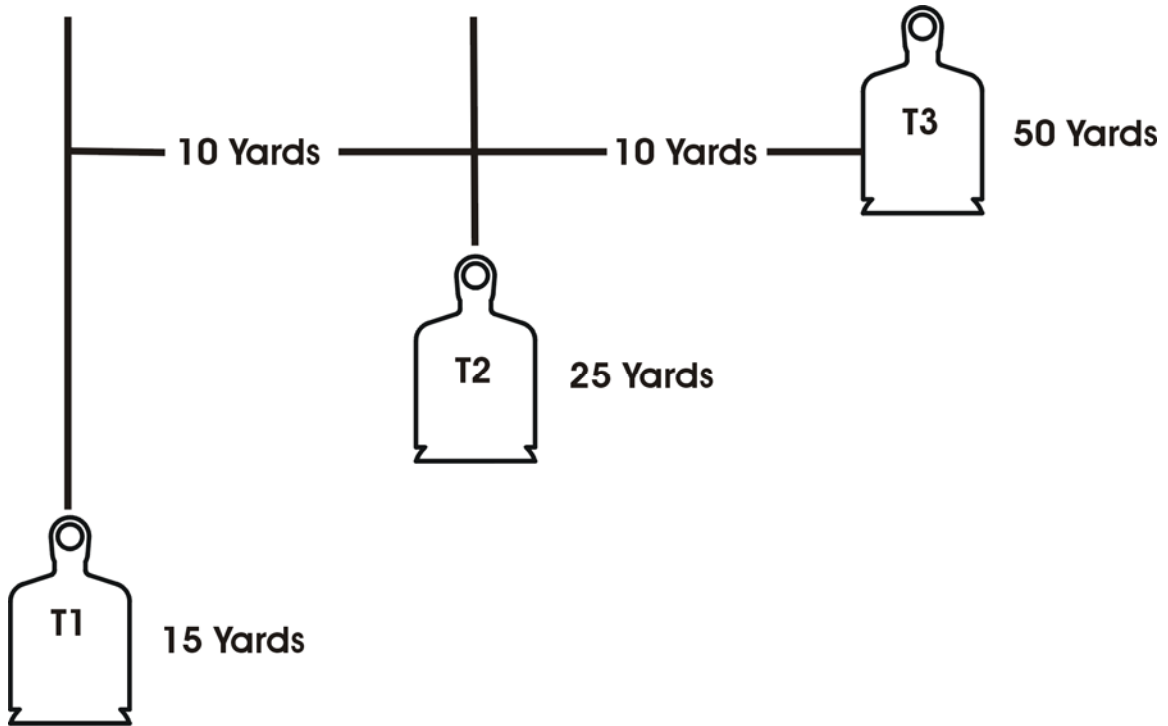
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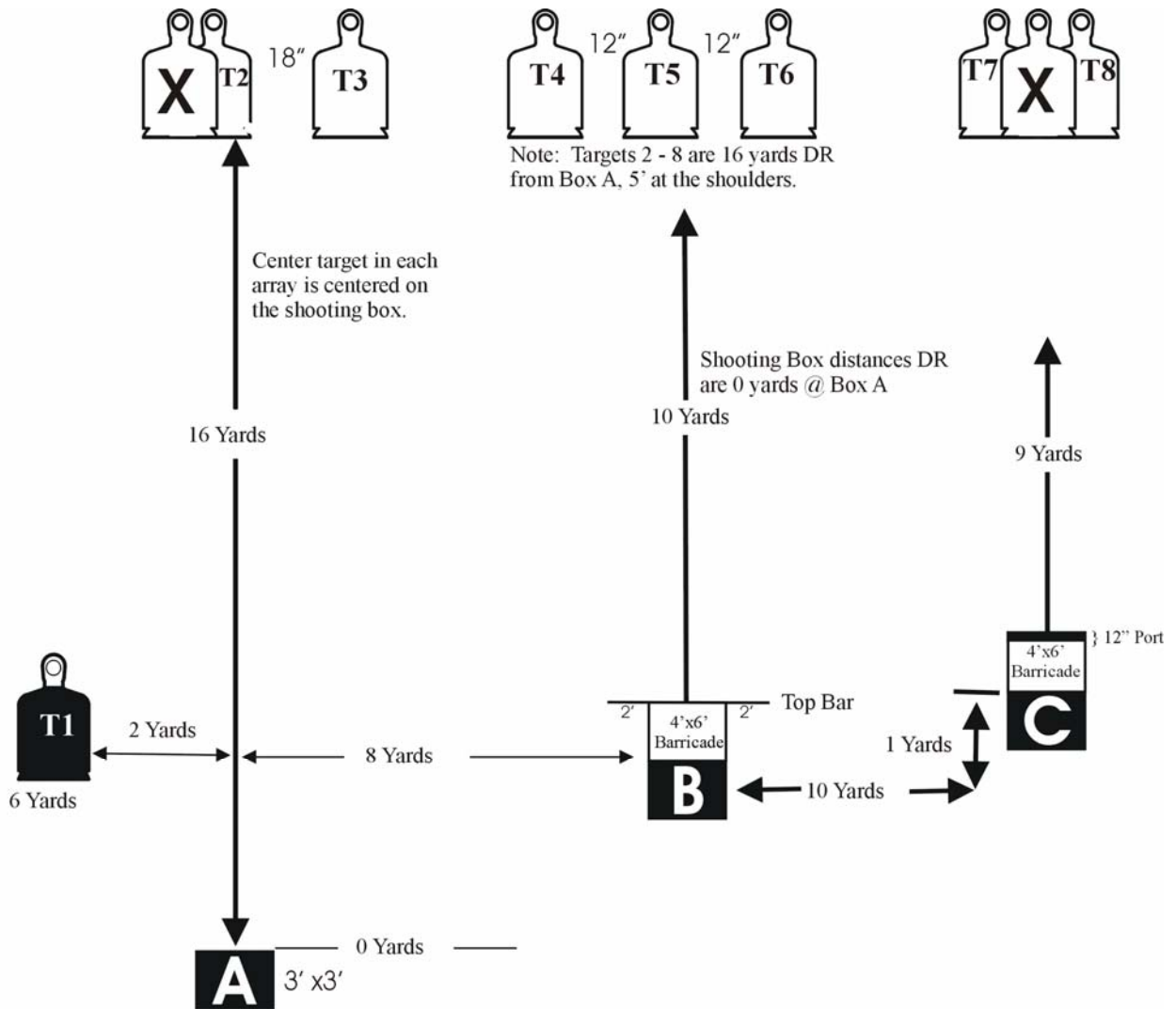
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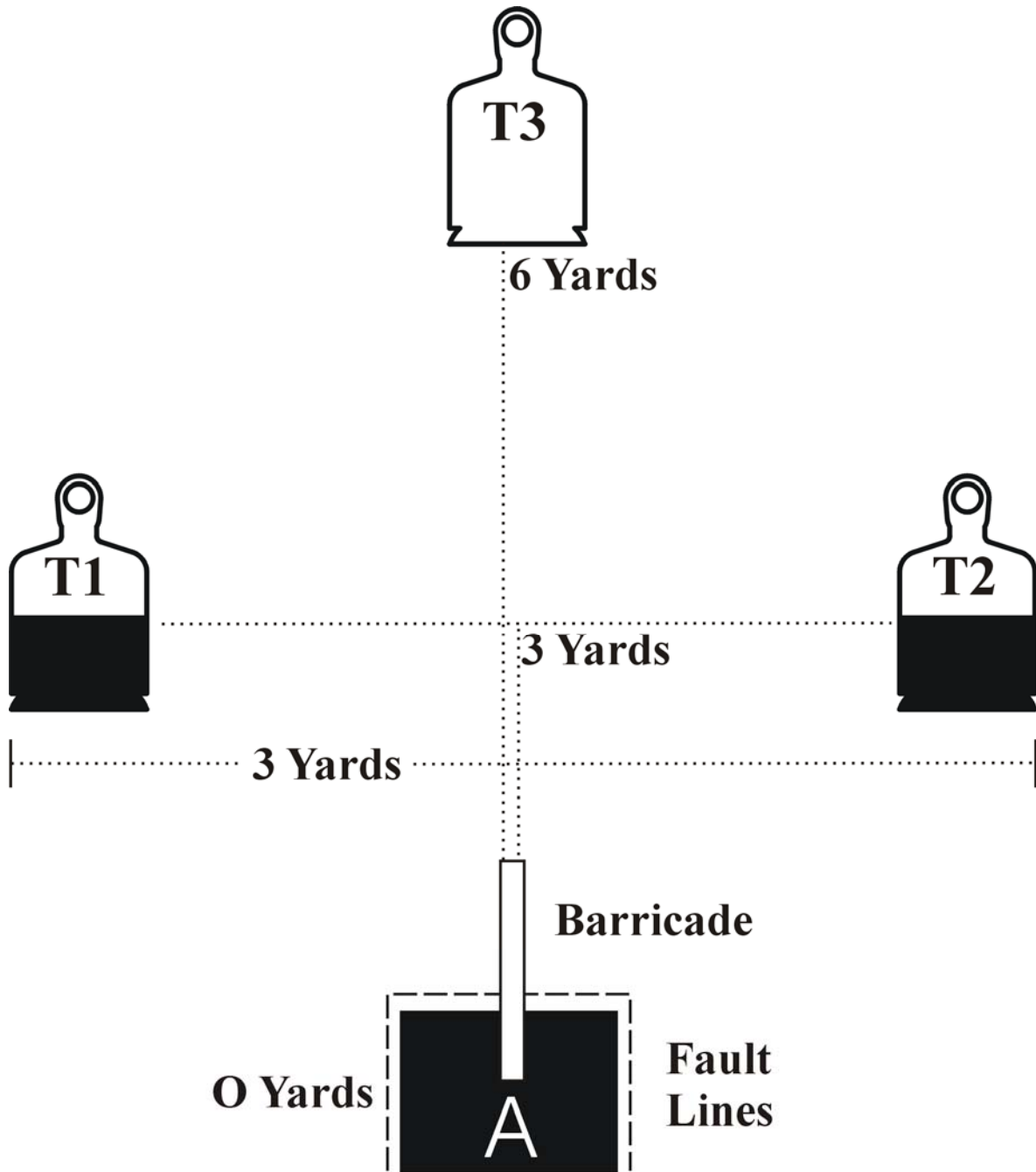
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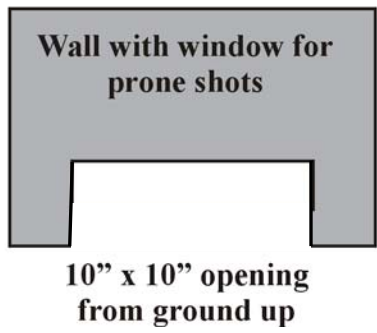
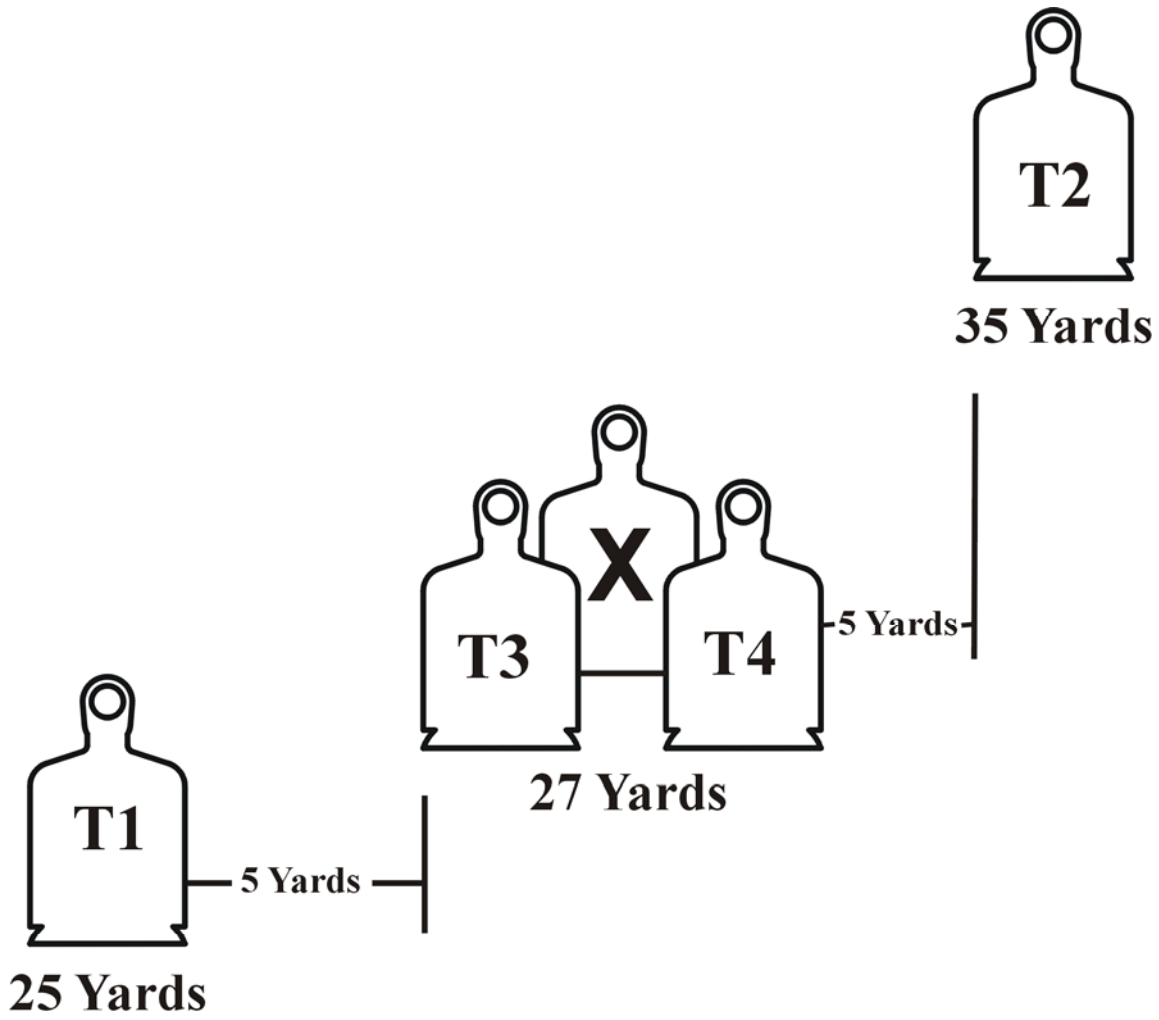


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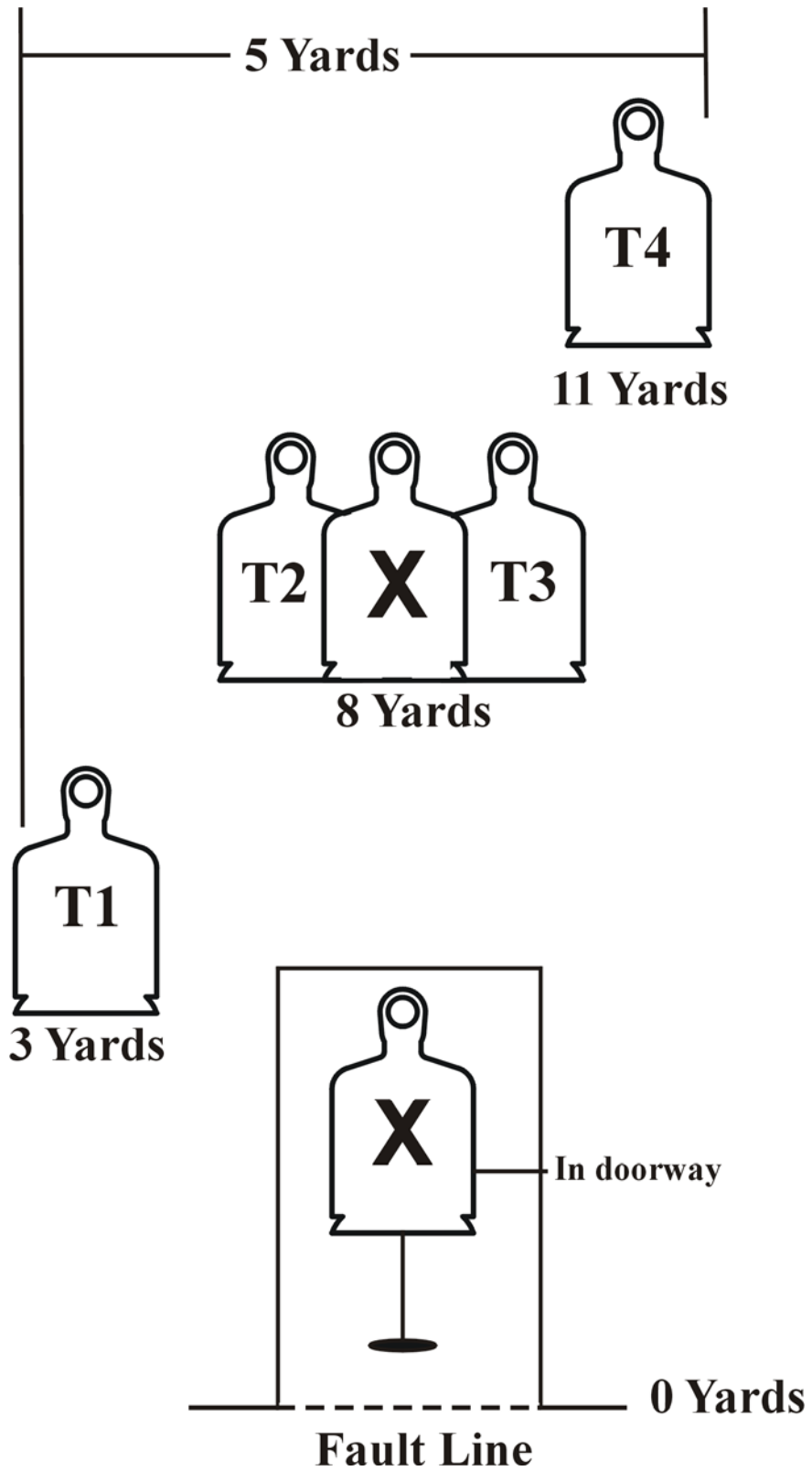


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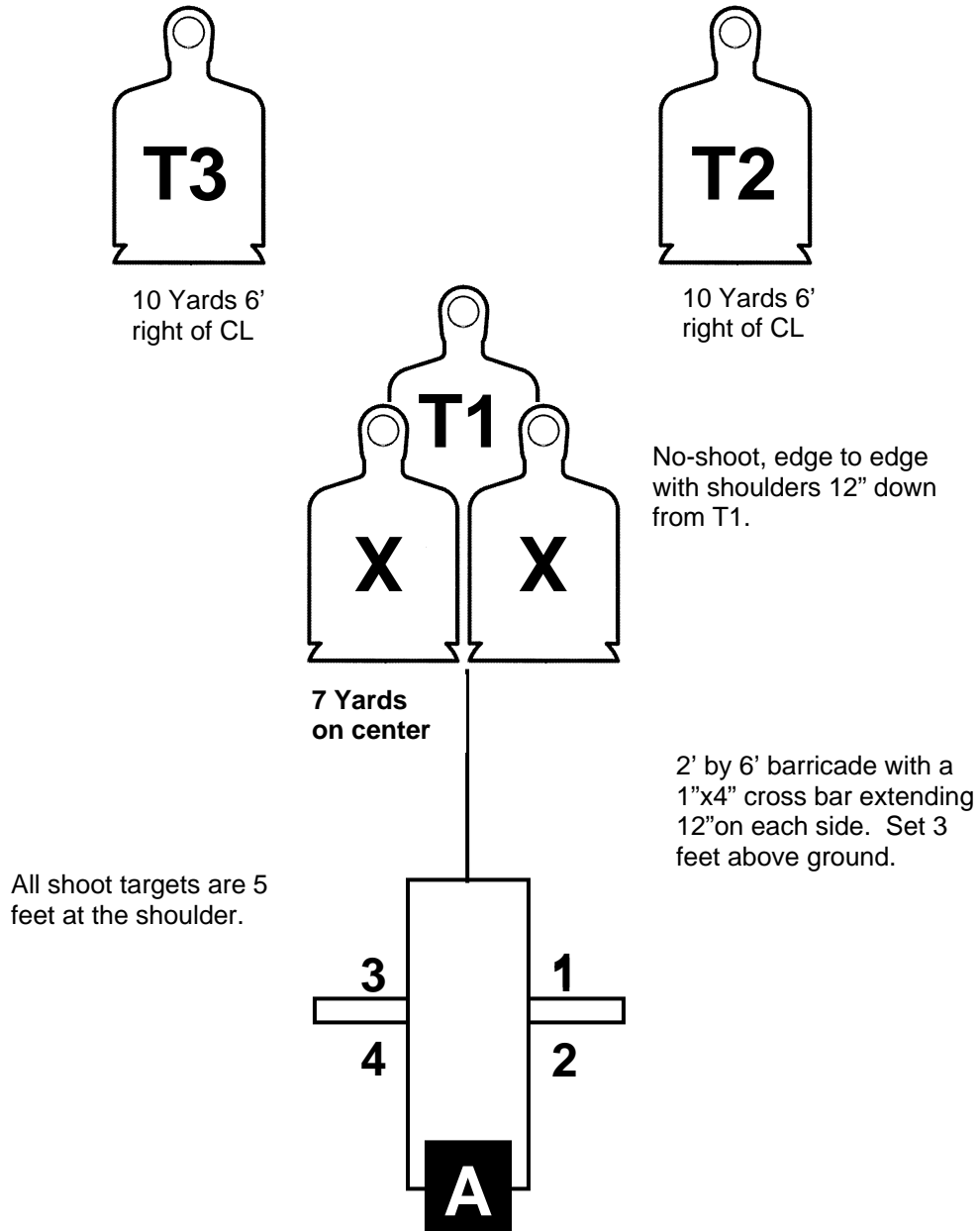




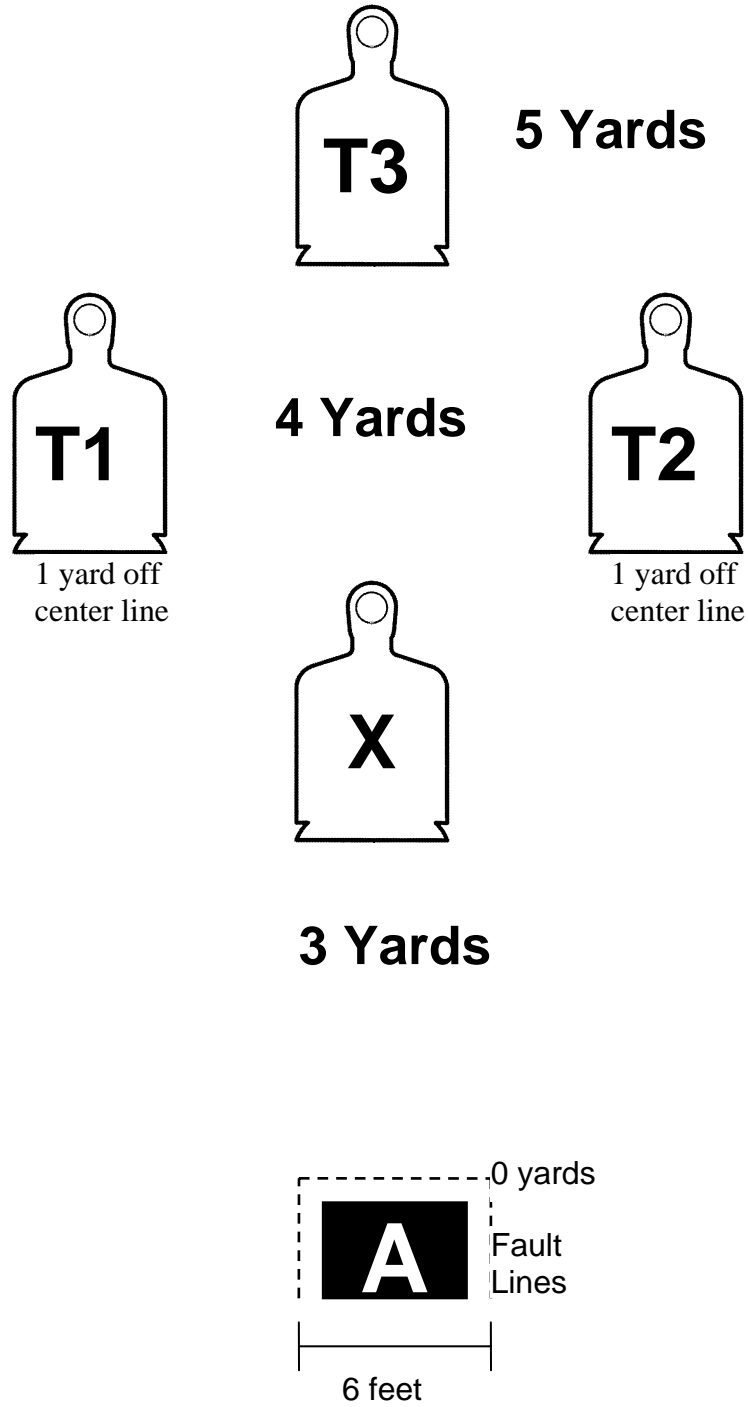
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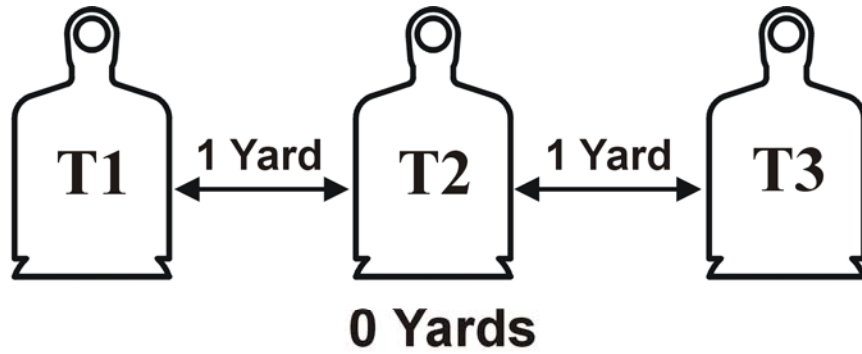
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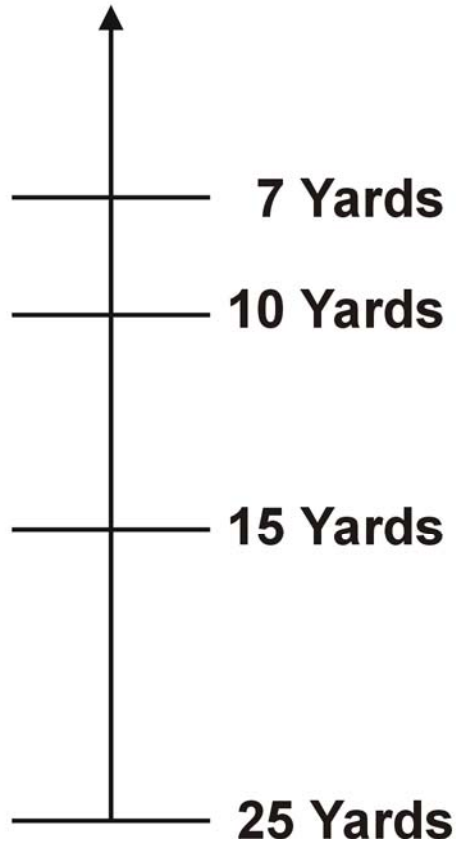
Practical Course Number 9



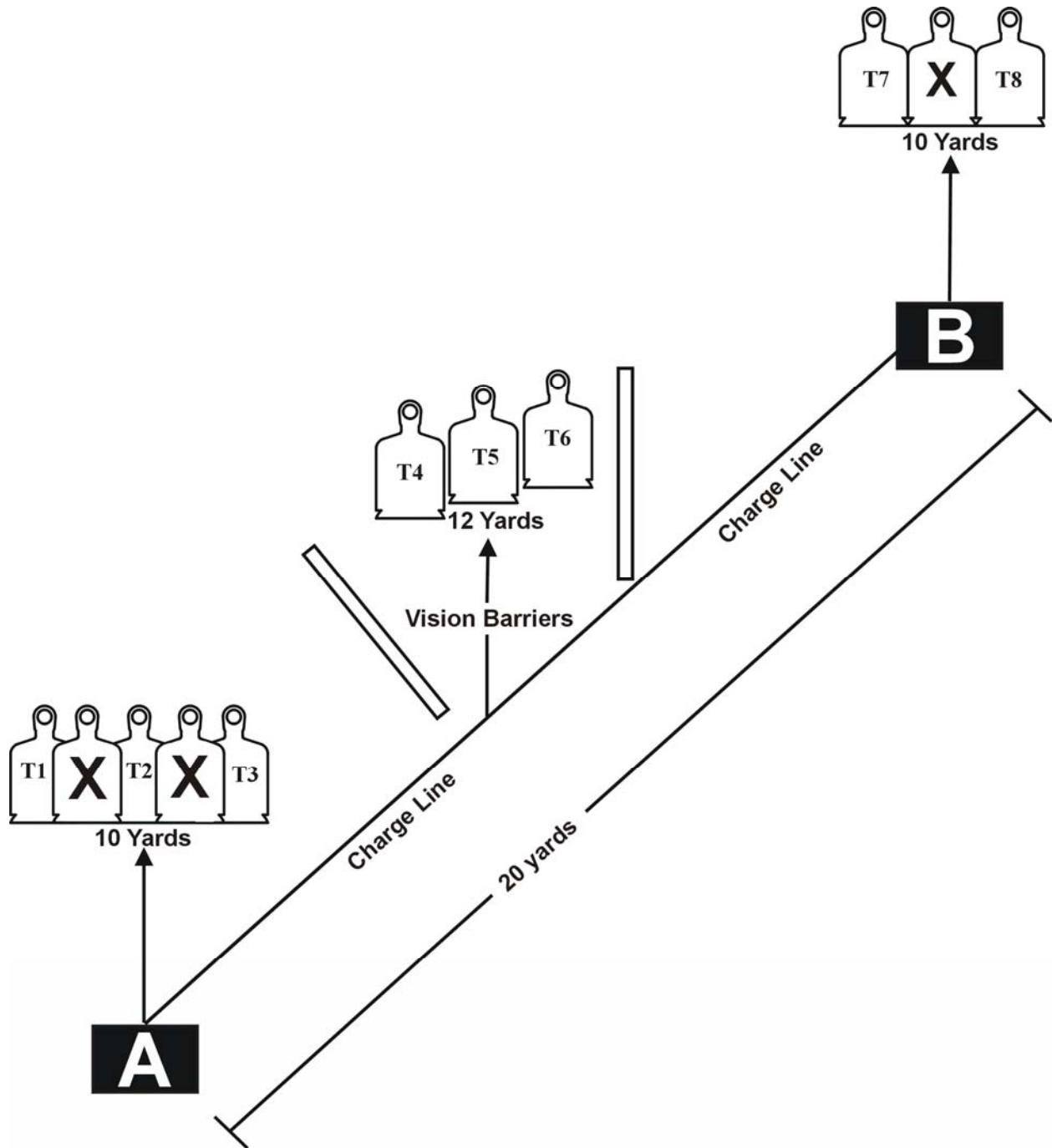
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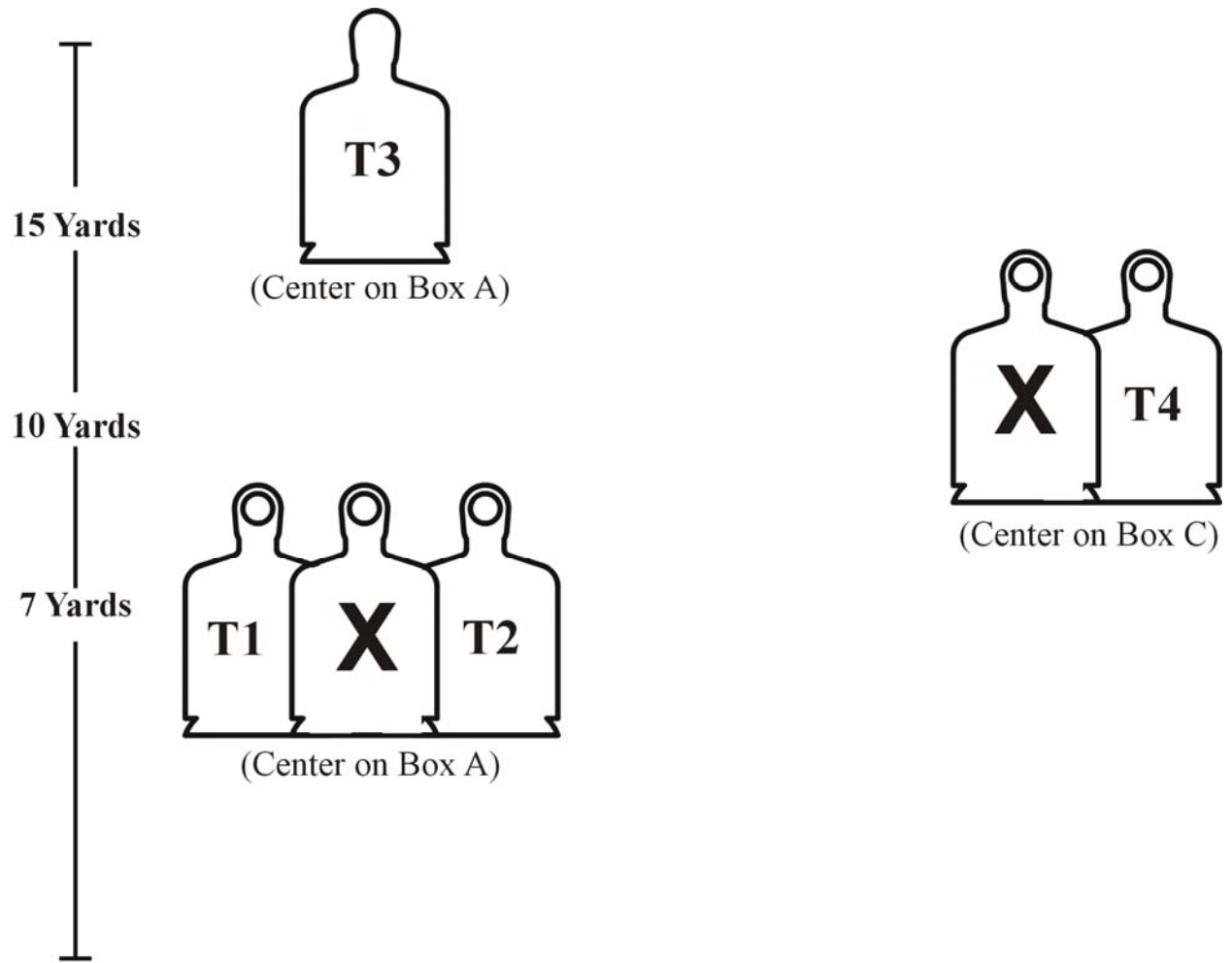


Targets are at 5' at shoulder and spaced 1 yard apart. T2 is centered on yard lines.

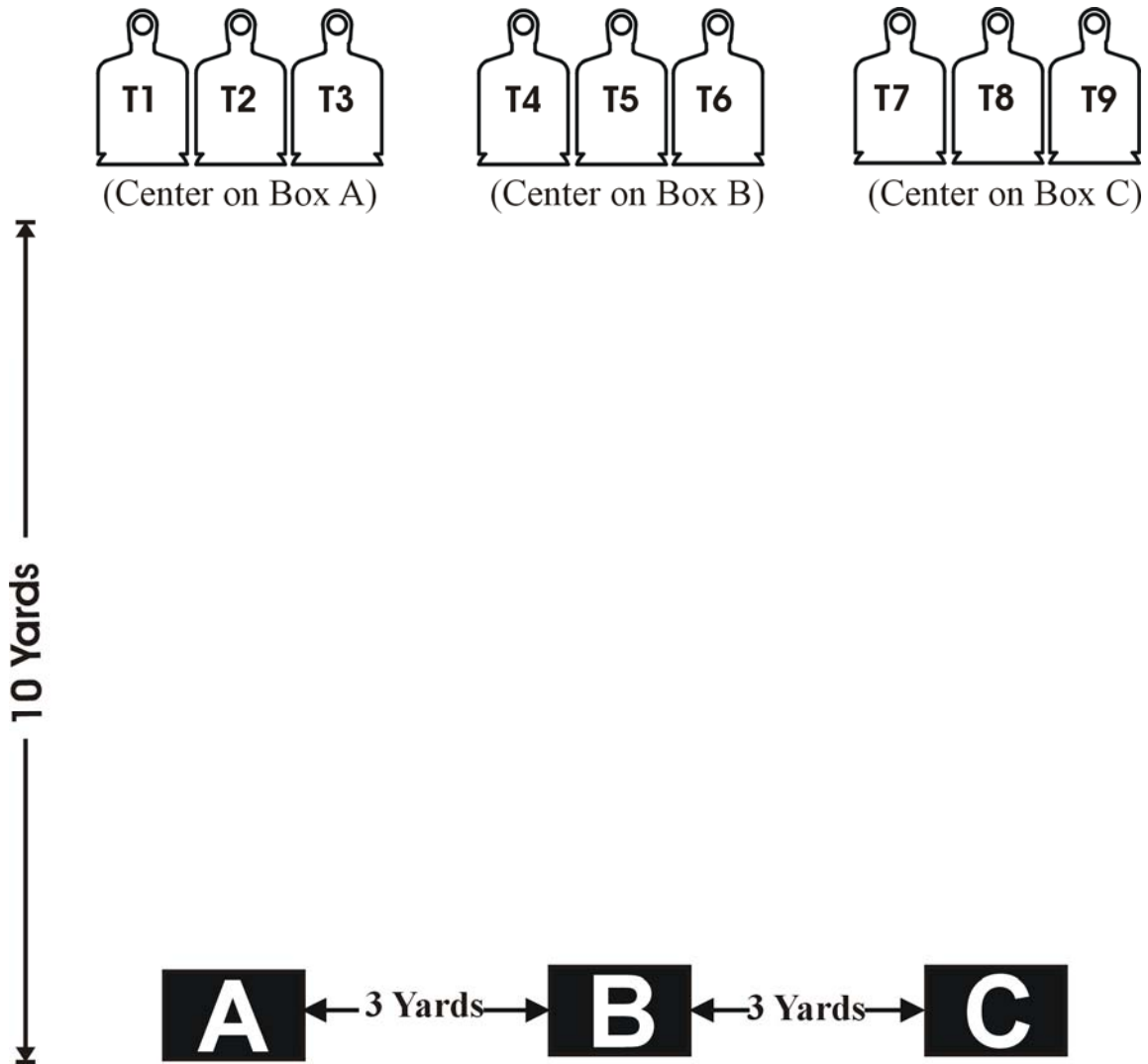


Practical Course Number 11



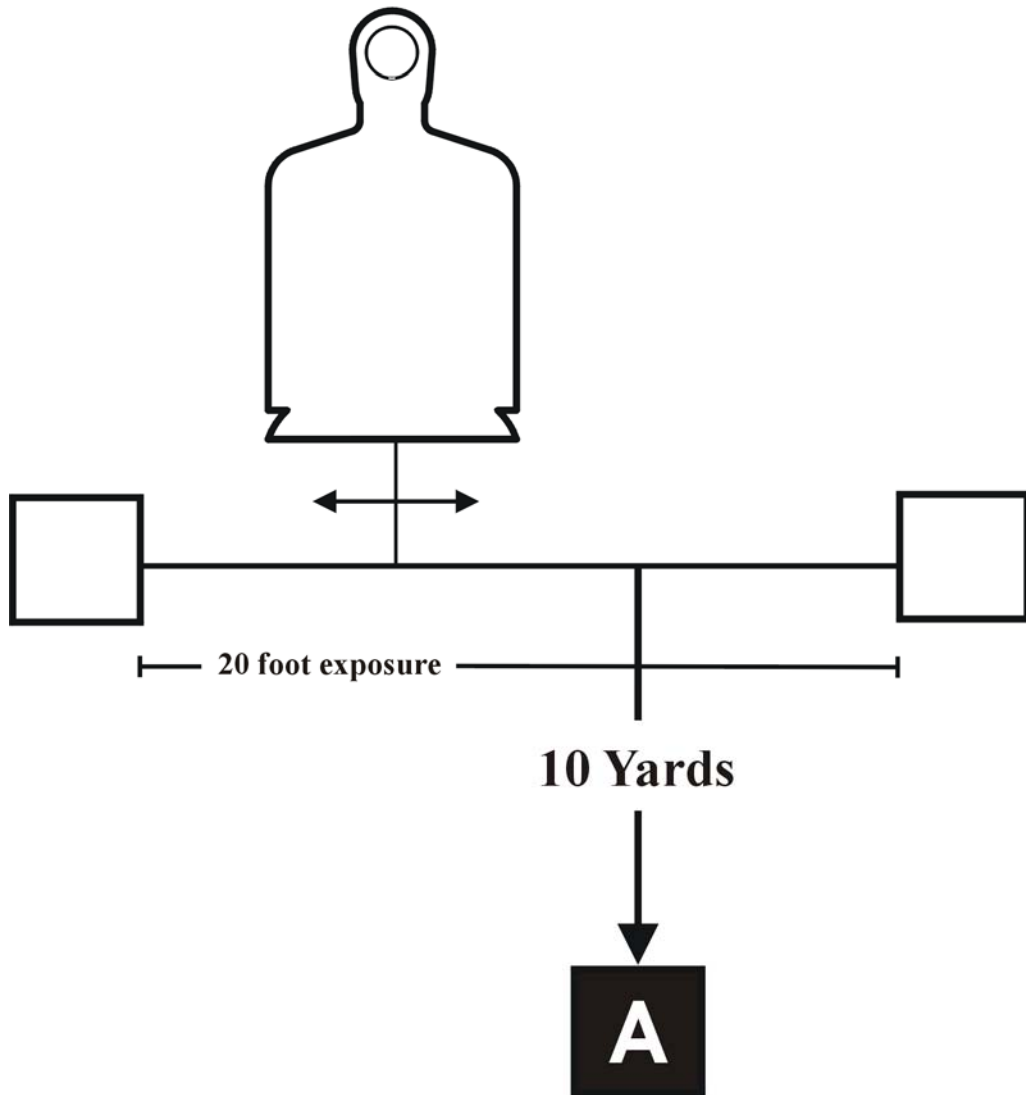


Box Size
3' x 3'

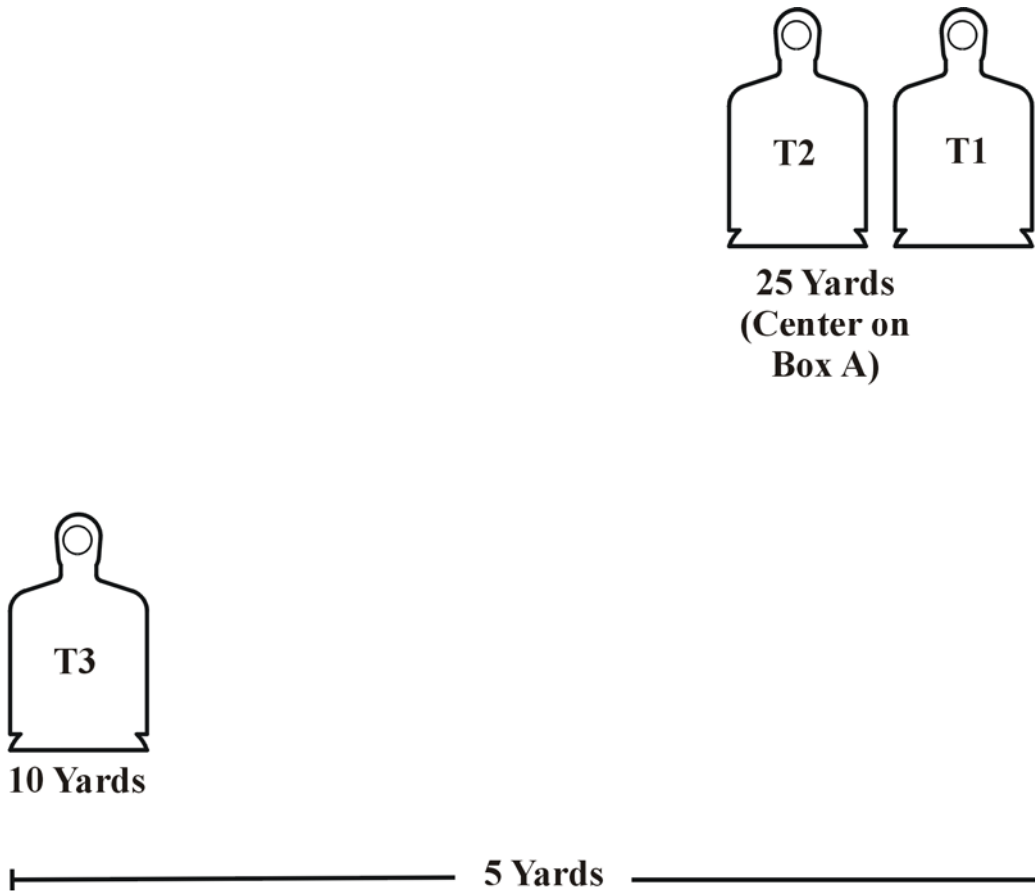


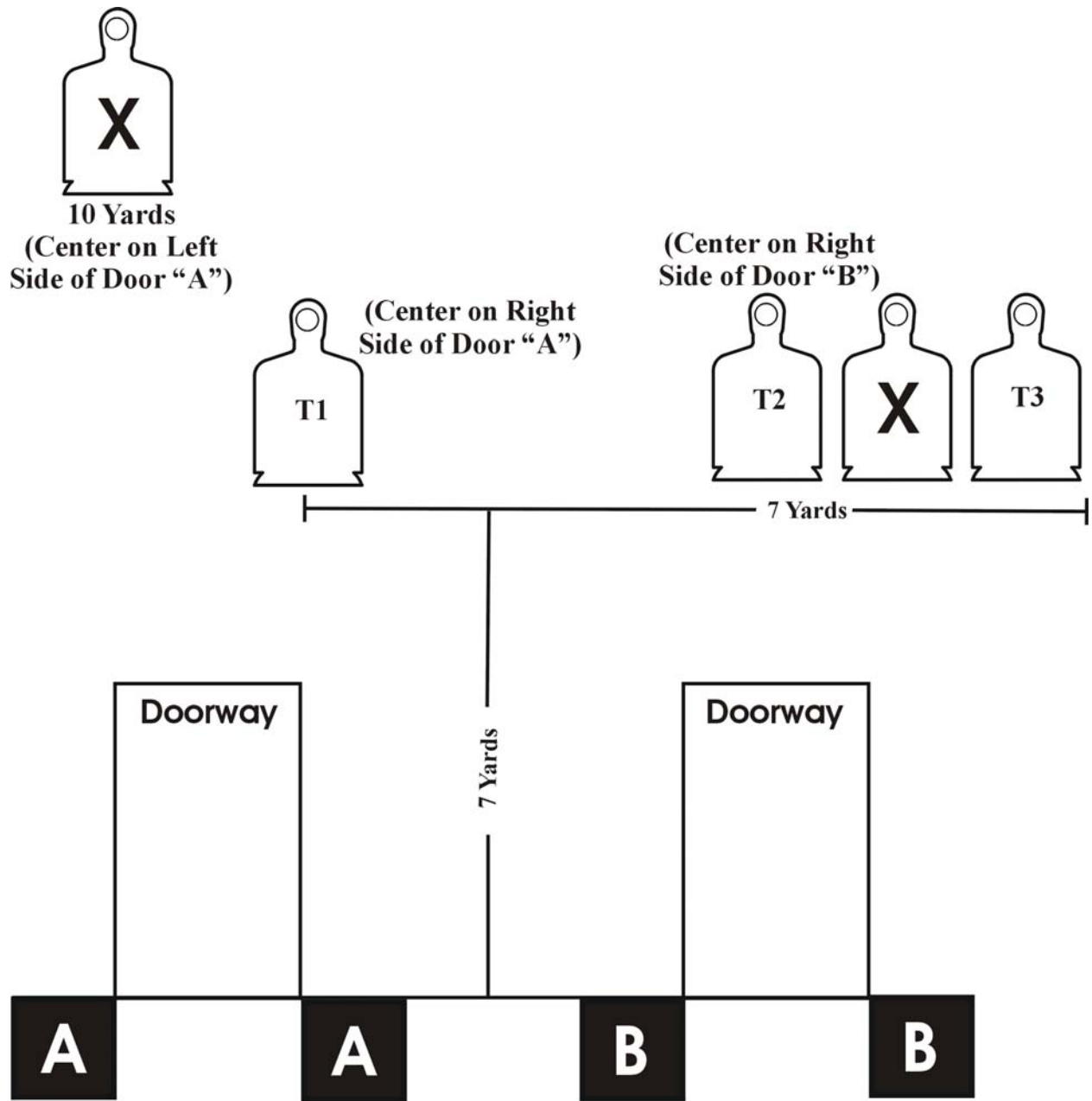
Practical Course Number 14

Running Man Target

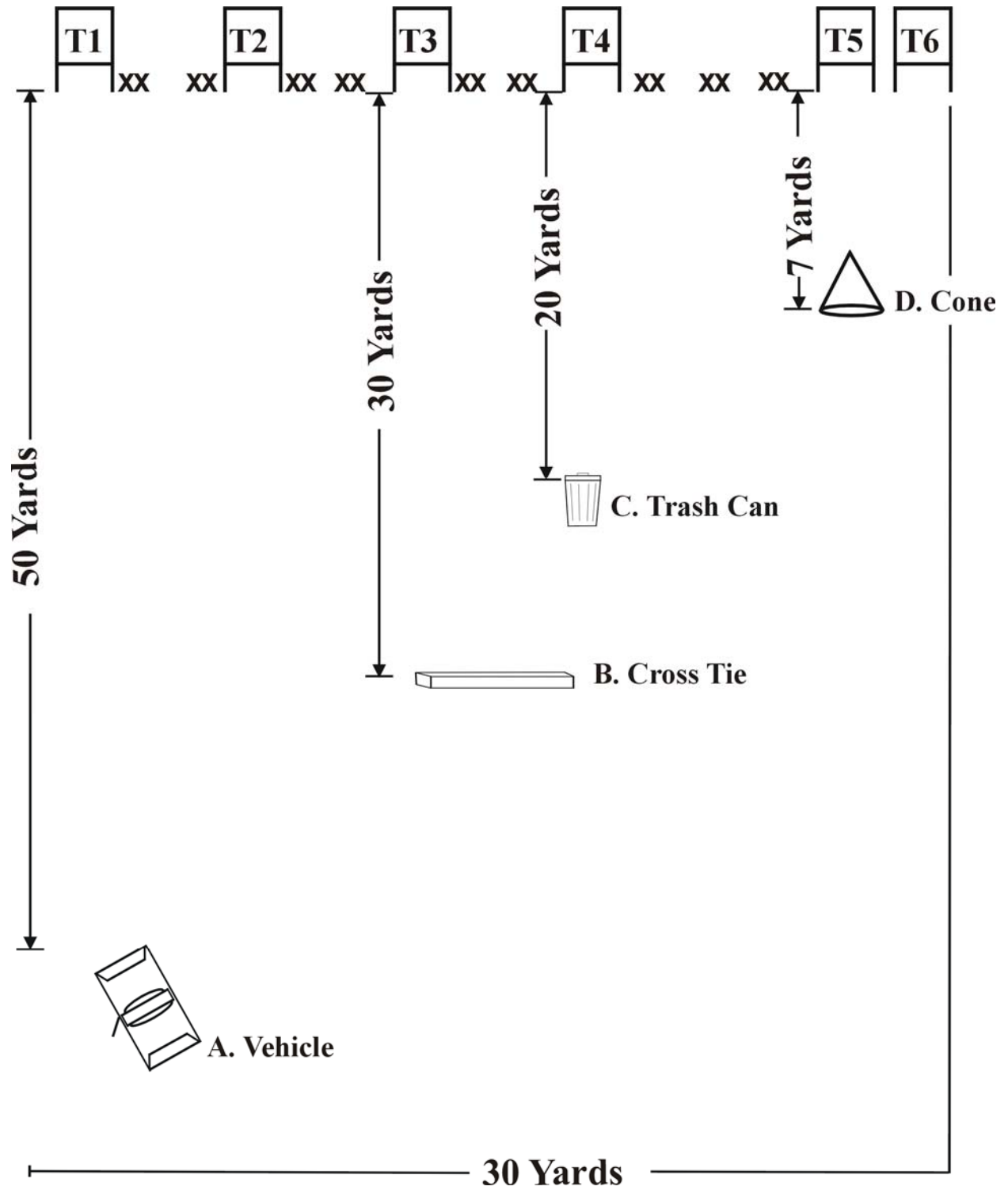


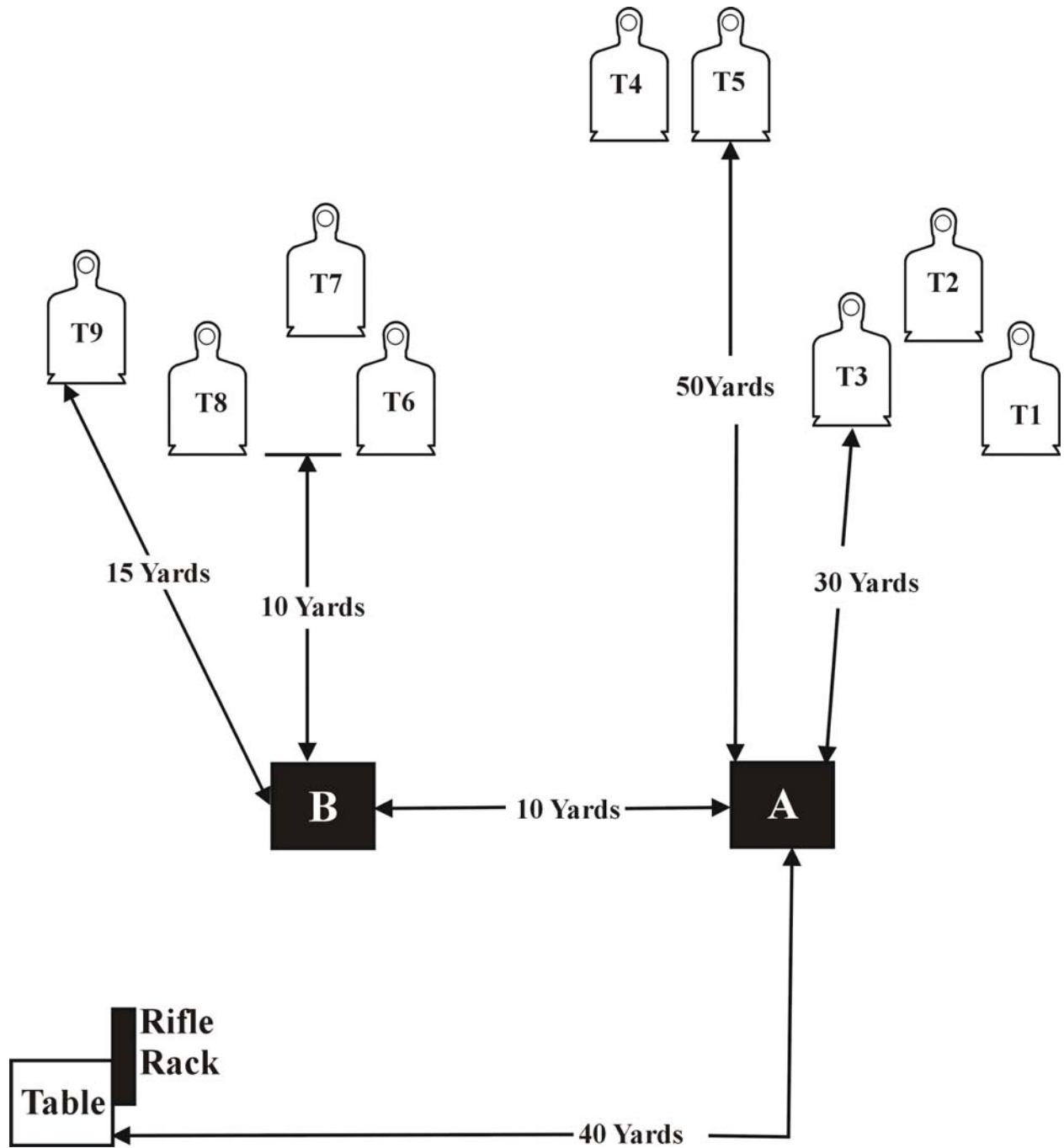
Practical Course Number 15



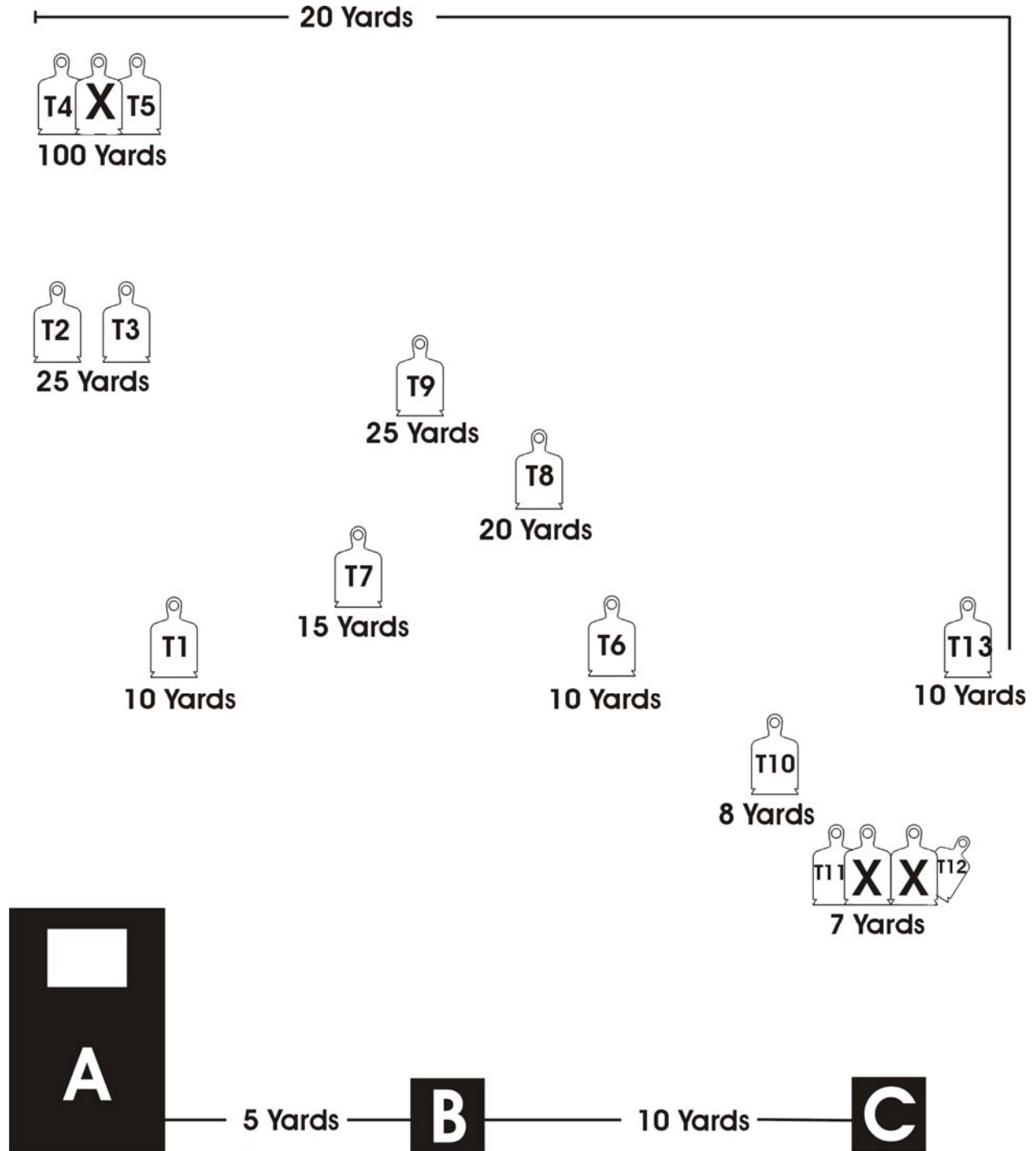


Practical Course Number 17





Practical Course Number 19



Practical Course Number 20

**DEPARTMENTAL ELEMENTS TO WHICH
DOE M 470.4-3 IS APPLICABLE**

Office of the Secretary
Departmental Representatives to the Defense Nuclear Facilities Safety Board
Energy Information Administration
National Nuclear Security Administration
Office of the Chief Information Officer
Office of Civilian Radioactive Waste Management
Office of Congressional and Intergovernmental Affairs
Office of Counterintelligence
Office of Economic Impact and Diversity
Office of Electricity Delivery and Energy Reliability
Office of Energy Efficiency and Renewable Energy
Office of Environment, Safety and Health
Office of Environmental Management
Office of Fossil Energy
Office of General Counsel
Office of Hearings and Appeals
Office of Intelligence
Office of Legacy Management
Office of Management, Budget and Evaluation/Chief Financial Officer
Office of Nuclear Energy, Science and Technology
Office of Policy and International Affairs
Office of Public Affairs
Office of Science
Office of Security and Safety Performance Assurance
Office of the Inspector General
Secretary of Energy Advisory Board
Bonneville Power Administration
Southeastern Power Administration
Southwestern Power Administration
Western Area Power Administration

ATTACHMENT 2 CONTRACTOR REQUIREMENTS DOCUMENT

This Contractor Requirements Document (CRD) is issued to identify requirements applicable to contractors. U.S. Department of Energy (DOE) contractors must adhere to the same Protective Force (PF) Program standards for protecting safeguards and security (S&S) interests including, but not limited to: nuclear weapons, explosives, and components; special nuclear material (SNM); vital equipment; classified matter; assets; facilities; and other property of interest to the S&S Program as DOE elements and their personnel. All requirements in this Manual apply to contractors that have responsibilities for administering the DOE PF and PF Firearms Programs for the purpose of protecting S&S interests. The requirements in this Manual must flow down to all subcontractors with responsibilities for administering the PF and PF Firearms Programs. The CRD does not state a separate set of requirements for contractors because all requirements in this Manual apply to Departmental elements, contractors, and subcontractors performing security tasks with the exception of the following:

Section A

Chapter I

p I-3 2.b.(3)
p I-5 2.d.(4)(d)3*
p I-9 3.a.(1) and (4)–(7)
p I-11 3.b.(1)(b) and 3.b.(3)(a)
p I-12 3.b.(3)(b)

Chapter VI

p VI-6 2.a.(6)*

Chapter VIII

Entire Chapter

Chapter II

p II-5 3.a.-e.
p II-6 4.a.-c.
 5.a.-d.

Appendix A-1

p. A1-1 2.*

Chapter III

p III-2 5.a.-b.
p III-3 6.*

Section B

Chapter V

p V-1 1.c.
p V-2 2.a.

Chapter IV

p IV-1 2.a.
p IV-11 11. and 12.b. and d.

* indicates partial paragraph

A violation of the provisions of this directive relating to the safeguarding or security of Restricted Data or other classified information may result in a civil penalty pursuant to subsection a. of section 234B of the Atomic Energy Act of 1954 (42 U.S.C. 228b.). The procedures for the assessment of civil penalties are set forth in Title 10, Code of Federal Regulations (CFR), Part 824, *Procedural Rules for the Assessment of Civil Penalties for Classified Information Security Violations*, (10 CFR Part 824).