# U.S. NUCLEAR REGULATORY COMMISSION

## REGULATORY GUIDE 5.75, REVISION 1

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# TRAINING AND QUALIFICATION OF SECURITY PERSONNEL AT NUCLEAR POWER REACTOR FACILITIES

## A. INTRODUCTION

### Purpose

This regulatory guide (RG) describes approaches and methodologies that the U.S. Nuclear Regulatory Commission (NRC) considers acceptable for the training and qualification of personnel who are assigned duties and responsibilities required for the implementation of Commission-approved security plans, licensee response strategies, and implementing procedures at nuclear power reactor facilities. Additionally, this RG describes methods the NRC staff considers acceptable for designing and implementing the performance evaluation program described in Section VI of Appendix B to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 73, "Physical Protection of Plants and Materials" (Ref. 1).

### Applicability

This RG provides guidance for power reactor applicants and licensees under 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities" (Ref. 2), and under 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants" (Ref. 3).

### Applicable Regulations

- 10 CFR Part 73, "Physical Protection of Plants and Materials," provides requirements for the establishment and maintenance of a physical protection system which will have the capability for protection of special nuclear material.
    - 10 CFR 73.55(c)(4) requires that licensees shall establish, maintain, implement, and follow a Training and Qualification Plan that describes how the criteria set forth in Section VI of Appendix B to 10 CFR Part 73 will be implemented.
    - 10 CFR 73.55(d)(3) requires that licensees must ensure that security personnel are trained, equipped, and qualified to perform their assigned duties and responsibilities. Consistent with Section VI of Appendix B to 10 CFR Part 73 and the Training and Qualification plan.

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- 10 CFR Part 73.55(d)(3) provides requirements for non-security personnel who are assigned duties and responsibilities required to implement the physical protection plan.

- 10 CFR Part 73, Appendix B, Section VI, Nuclear Power Reactor Training and Qualification Plan for Personnel Performing Security Program Duties," provides performance-based requirements that describe the minimum training and qualifications for individuals assigned to implement the physical protection program at NRC-licensed nuclear power reactor facilities.

  - 10 CFR Part 73 Appendix B, Section VI, paragraph C.3.(a), requires that licensees shall develop, implement and maintain a Performance Evaluation Program that is documented in procedures which describe how the licensee will demonstrate and assess the effectiveness of their onsite physical protection program and protective strategy. The strategy includes the capability of the armed response team to carry out their assigned duties and responsibilities during safeguards contingency events.

**Related Guidance**

- RG 5.76, "Physical Protection Programs at Nuclear Power Reactors," (Ref. 4) contains Safeguards Information (SGI) and is not publicly available. The RG provides approaches the NRC staff has found acceptable for meeting the requirements of 10 CFR Part 73.

- RG 5.81, "Target Set Identification and Development for Nuclear Power Reactors," (Ref. 5) is Official Use Only-Security Related Information (OUO-SRI) and is not publicly available. The RG provides guidance on implementation of requirements for physical protection of licensed activities in nuclear power reactors against radiological sabotage.

**Purpose of Regulatory Guides**

The NRC issues RGs to describe to the public methods that the staff considers acceptable for use in implementing specific parts of the agency's regulations, to explain techniques that the staff uses in evaluating specific issues or postulated events, and to provide guidance to applicants. RGs are not substitutes for regulations and compliance with them is not required. Methods and solutions that differ from those set forth in RG will be deemed acceptable if they provide a basis for the findings required for the issuance or continuance of a permit or license by the Commission.

**Paperwork Reduction Act**

This RG contains information collections covered by 10 CFR Parts 50, 52 and 73 that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et. seq.). These information collections were approved by the Office of Management and Budget (OMB), under control numbers 3150-0011, 3150-0151and 3150-0002. Send comments regarding this information collection to the Information Services Branch, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0011, 3150-0151 and 3150-0002), Office of Management and Budget, Washington, DC 20503.

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# B. DISCUSSION

**Reason for Revision**

This revision of the guide (Revision 1) clarifies staff guidance for the training and qualification requirements defined in Section VI of Appendix B to 10 CFR Part 73. In particular, this revision provides a more comprehensive discussion of the objectives for training and qualifying licensee and contractor security personnel, as well as personnel who support the licensee's security program but are not direct members of the licensee's security staff or contractors to the security organization. This revision also provides additional clarification on aspects of the training and qualification process that the staff has determined would be helpful for licensees in implementing their performance evaluation programs. This revision contains a broad discussion of tactical response drills and Force-on-Force (FOF) exercises, including follow-on critiques, which has been added to ensure that licensees have ample guidance for effective and complete drill and exercise management, from planning through conclusion.

**Background**

Revision 0 of this RG was issued in 2009.The RG provide the NRC staff's initial guidance for training and qualification of security personnel at operating nuclear power facilities. Since issuance of the initial RG, there have been changes in rules and other associated guidance documents applicable to licensee training and qualification programs. This revision to the RG incorporates lessons learned from operating experience and these rule changes since the original publication of the guide.

**Consideration of International Standards**

The International Atomic Energy Agency (IAEA) works with member states and other partners to promote the safe, secure, and peaceful use of nuclear technologies. The IAEA develops Safety Requirements and Safety Guides for protecting people and the environment from harmful effects of ionizing radiation. This system of safety fundamentals, safety requirements, safety guides, and other relevant reports, reflects an international perspective on what constitutes a high level of safety. To inform its development of this RG, the NRC considered IAEA Safety Requirements and Safety Guides pursuant to the Commission's International Policy Statement (Ref. 6) and Management Directive and Handbook 6.6, "Regulatory Guides" (Ref. 7).

The following IAEA Safety Requirements and Guides were considered in the development/ update of the Regulatory Guide:

IAEA Nuclear Security Series No. 13, "Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225/Revision 5)" (Ref. 8), issued January 2011, contains recommended training guidance for nuclear security personnel. This RG incorporates similar training recommendations and is consistent with the basic safety principles provided in IAEA Nuclear Security Series No. 13.

The systematic approach to training (SAT) has been accepted by many nuclear utilities as the international best practice for the training and qualification of nuclear power plant personnel. The IAEA International Working Group on Nuclear Power Plant Personnel Training and Qualification has emphasized the importance of sharing the experience gained and lessons learned by Member States in the course of their application of SAT in order to establish and maintain the best possible training program for nuclear power plant personnel. The International Working Group thus recommended the preparation and publication of an IAEA technical report on experiences in the use of SAT for nuclear power plant personnel. As a result of the working group recommendation, IAEA published "Experience in the Use of

Systematic Approach to Training (SAT) for Nuclear Power Plant Personnel" (Ref. 9), IAEA-Tecdoc-1057, which provides significant discussion of the SAT process.

**Documents Discussed in Staff Regulatory Guidance**

This regulatory guide endorses, in part, the use of one or more codes or standards developed by external organizations, and other third-party guidance documents. These codes, standards and third-party guidance documents may contain references to other codes, standards or third-party guidance documents ("secondary references"). If a secondary reference has itself been incorporated by reference into NRC regulations as a requirement, then licensees and applicants must comply with that standard as set forth in the regulation. If the secondary reference has been endorsed in a regulatory guide as an acceptable approach for meeting an NRC requirement, then the standard constitutes a method acceptable to the NRC staff for meeting that regulatory requirement. If the secondary reference has neither been incorporated by reference into NRC regulations nor endorsed in a regulatory guide, then the secondary reference is neither a legally binding requirement nor a "generic" NRC approved acceptable approach for meeting an NRC requirement. However, licensees and applicants may consider and use the information in the secondary reference, if appropriately justified, consistent with current regulatory practice, and consistent with applicable NRC requirements.

Nuclear Energy Institute (NEI) Guidance Document, 03-12, "Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan [and Independent Spent Fuel Storage Installation Security Program]" (Ref. 10) was originally developed by NEI and endorsed by the NRC staff as an interim measure to assist licensees with a templated uniform approach for licensees to develop Physical Security Plans, Training and Qualification Plans and Safeguards Contingency Plans that would implement the Commissions requirements in security orders EA–02–026, ''Interim Compensatory Measures (ICM) Order,'' issued February 25 2002 (March 4, 2002; 67 FR 9792); EA–02–261, ''Access Authorization Order,'' issued January 13, 2003; 68 FR 1643); EA–03–039, ''Security Personnel Training and Qualification Requirements (Training) Order,'' issued April 29, 2003, (May 7, 2003; 68 FR 24514); and EA–03–086, ''Revised Design Basis Threat Order,'' issued April 3,(May 7, 2003; 68 FR 24517).

**Systems Approach to Training**

A SAT is one technique used in developing Training and Qualification plans. The application of the SAT process during the development of a licensee Training and Qualification Plan is described in NRC staff endorsed Nuclear Energy Institute (NEI) guidance document NEI 03-12. The Training and Qualification Plan is a component of the license.

As defined in 10 CFR 55.4, "Definitions," the term Systems [or Systematic] Approach to Training means a training program that includes the following five elements:

- Systematic analysis of the jobs to be performed
- Learning objectives derived from the analysis which describes desired performance after training
- Training design and implementation based on the learning objectives
- Evaluation of trainee mastery of the objectives during training
- Evaluation and revision of the training based on the performance of trained personnel in the job setting

While 10 CFR Part 55 specifically addresses licensed operators, licensees may wish to use the above elements when discussing KSAs to address the training requirements in Section VI of Appendix B to 10 CFR Part 73 for all personnel assigned duties and responsibilities directly associated with the

effective implementation of the Commission-approved security plans, licensee protective strategy, and implementing procedures.

The following example, taken in part from the Institute of Nuclear Power Operations, INPO-AP-921 (Ref. 11), shows one approach or method for evaluating tasks associated with the development of knowledge, skills, and abilities required to effectively perform security-related duties and responsibilities. While INPO-AP-921 has been withdrawn by INPO and is no longer available for further distribution, the document was used as a resource in the development of the initial application of the SAT Process. This example is intended to generically represent a Systematic Approach to Training. Additional technical details can be found in the Department of Energy (DOE) Handbook, "Training Program Handbook: A Systematic Approach to Training" (DOE-HDBK-1078-94), October 25, 1995 and International Atomic Energy Agency (IAEA), "Analysis Phase of Systematic Approach to Training for Nuclear Plant Personnel" (IAEA-TECDOC-1170), Vienna, Austria, 2000.

**Example: Training System Development**

Training System Development (TSD) represents one systematic approach to training and qualification. This overview describes TSD and its inputs, methods, and products. TSD incorporates the attributes of analysis, design, development, implementation, and evaluation (the ADDIE model), which are discussed in the following paragraphs. Activities within each attribute are discussed and their respective products are identified. Although shown in the sequence appropriate for initial development, TSD activities should be period based (i.e., the period of time in which training activities are developed and implemented) on the status of existing programs and other practical constraints. TSD offers a framework for action. When used to complement existing efforts and guide new developments, it can help improve training system performance.

Analysis provides a method of responding to changes in human resource requirements, solving job performance problems, and learning from operating experience. It begins by gathering the facts needed to make informed training development decisions. This is necessary to make sure that apparent concerns can be resolved through training. If the facts confirm a valid training need, job analysis uses existing job data and incumbent employees to identify and rate job tasks. Tasks rated Difficult and Important are selected for training and emphasized. Their exact methods of correct performance and underlying competencies are then determined through task analysis. Completing this process reveals reliable information on safe work practices. The skills, knowledge, and abilities identified provide a task-specific content reference for both new and existing programs.

Design uses the task performance information collected during analysis to specify, in measurable terms, the job skills, knowledge, and abilities that training will develop in the learner. Job performance measures are prepared for each task. By defining how individual tasks are performed, they focus training development efforts and support in plant training and qualification. Learning objectives are developed for groups of task-related knowledge and skills. These written statements define exactly when, what, and how well the trainee must perform during training. Standardized knowledge and performance tests are designed to and documented to ensure that these competencies are reliably evaluated. Together, these measures of observable employee behavior serve as the program design basis. Decisions on training setting, trainee entry qualifications, and organization of learning objectives are also made. Design concludes with the development of a training plan.

Development organizes the instructional materials needed for trainees to achieve the learning objectives. Emphasis is on maximizing the use of existing materials and resources. Instructor and trainee activities are defined using the job performance measures, learning objectives, and tests produced in design. These activities describe how the instructor and trainees will perform during training to achieve the learning

objectives. Existing suitable training materials and lesson plans are selected, and new ones are produced as required. Resulting training materials are reviewed for technical accuracy, tried out with a group of trainees, and revised as necessary. Performance-based training materials are the products of this phase.

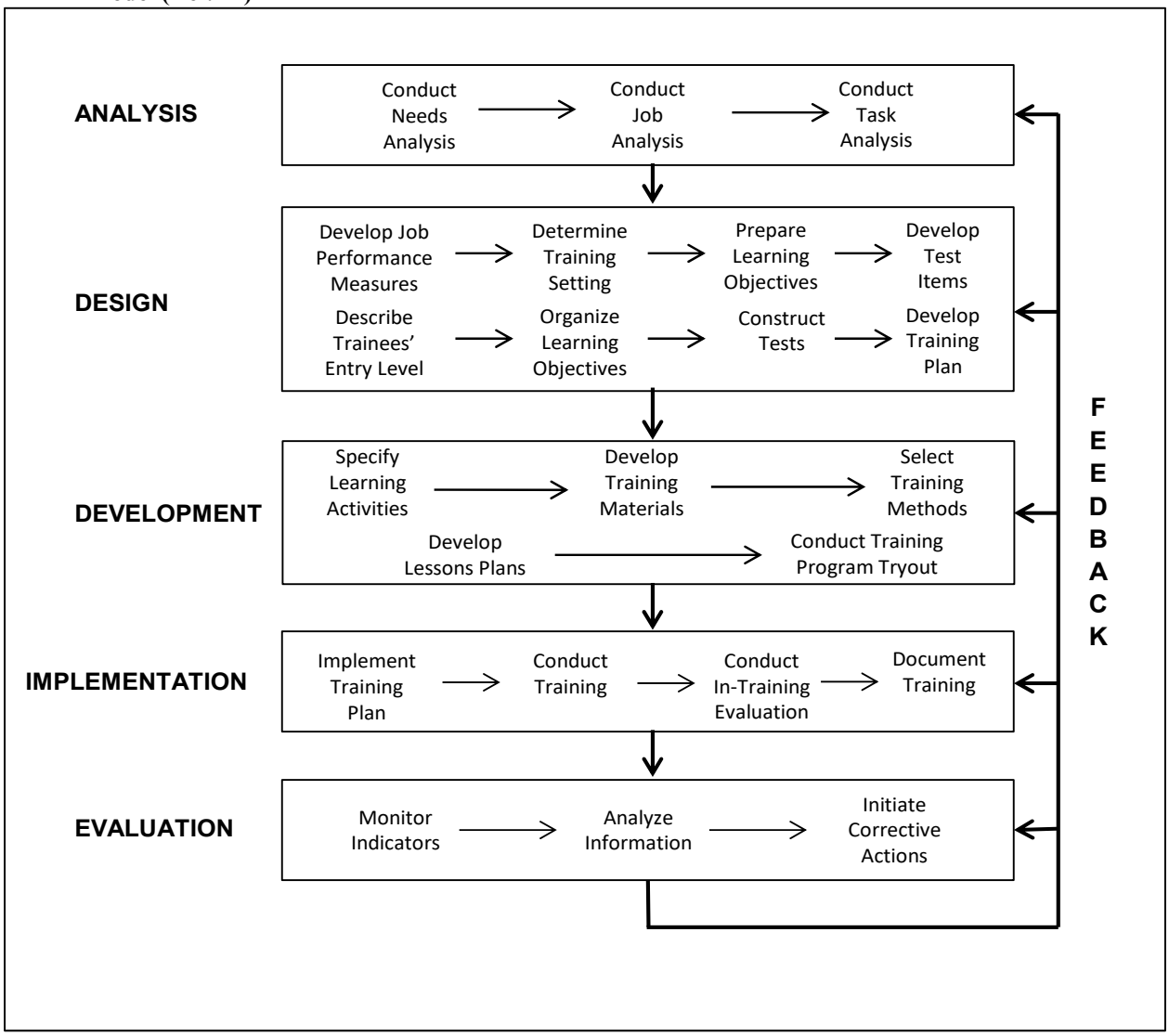
Implementation is the process of putting training programs into operation. It begins by activating the training plan. Instructors are selected and trained, and the availability of trainees, facilities, and resources is confirmed. Training is delivered as planned.

Evaluation ensures training's continuing ability to produce qualified employees. By monitoring such indicators as employee job performance, plant and procedure changes, and operating experience, evaluation helps maintain and improve the training program. It is the dynamic process of assessing performance, identifying concerns, and initiating corrective actions. Trainee and instructor performance are evaluated. These evaluations serve two purposes: verify that trainees have achieved the learning objectives and detect and solve instructor performance problems. Key records are maintained to support management information needs and to document the performance of both trainees and instructors. The program feedback it yields enables training to respond adaptively to unforeseen problems or changing conditions. Completing evaluation steps produces the performance data and feedback vital to any training system.

Feedback

The flow chart below may be used as a resource to help understand the Analysis Design Development Implementation and Evaluation (ADDIE) model.

**ADDIE Model (Ref. 12)**



# C. STAFF REGULATORY GUIDANCE

## 1. General Requirements and Introduction

Licensees and applicants should use this guidance to select, train, equip, test, qualify, and re-qualify armed and unarmed security personnel, watchpersons, and members of the licensee staff that support the licensee's security organization, to ensure that these individuals possess and maintain the knowledge, skills, and abilities required to carry out their assigned duties and responsibilities effectively. During implementation of the requirements of Section VI of Appendix B to part 73, each site must consider site-specific conditions to ensure that the licensee's training and qualification program provides the site-specific knowledge, skills, and abilities that individuals need to effectively protect against the Design Basis Threat (DBT) of radiological sabotage.

For the purposes of this document, the physical protection program refers to licensee's response strategy and procedures (including the Training and Qualification Plan) implementing the Commission-approved security plan(s) for the prevention of significant core damage and spent fuel sabotage. Consistent with the Introduction to Appendix B to 10 CFR Part 73, power reactor licensees and applicants subject to 10 CFR 73.55 must comply with the requirements in Section VI of Appendix B to 10 CFR Part 73.

The regulatory requirements discussed here, for an effective Training and Qualification plan may include but are not limited to:

(a) minimum employment suitability and qualification;
(b) minimum physical qualifications;
(c) minimum psychological qualifications;
(d) duty and on-the-job training;
(e) weapons and tactical response training, exercises, and drills;
(f) demonstration of individual knowledge, skills, and abilities;
(g) readiness of individuals to perform assigned duties and responsibilities;
(h) maintenance of equipment;
(i) maintenance and retention of program records;
(j) the conduct of reviews and self-audits; and
(k) performance evaluation program.

Requalification is required annually on attribute (b) regarding physical qualifications and the performance attributes identified in (e) and (f) above.

Consistent with Section VI, paragraph A.1 and C.1 of Appendix B to 10 CFR Part 73, the licensee shall ensure that the personnel who are assigned duties and responsibilities required to implement the Commission-approved security plans meet minimum training and qualification requirements to ensure each individual possesses the knowledge, skills, and abilities required to effectively perform assigned duties and responsibilities.

**1.1** The purpose of the Training and Qualification plan is to describe how each licensee will meet the minimum training and qualification requirements at its site and to establish the site-specific training and qualifications guidelines needed to ensure that each individual is properly suited, trained, equipped, and qualified to effectively perform assigned duties and responsibilities.

Consistent with Section VI, paragraph A.5 of Appendix B to 10 CFR Part 73, the licensee shall ensure that the training and qualification program simulates, as closely as practicable, the specific conditions under which the individual shall be required to perform assigned duties and responsibilities.

**1.2** The licensee may consider establishing a methodology for identifying and accounting for site-specific conditions (e.g., independent spent fuel storage installation patrols, security owner-controlled area (SOCA) vehicle search requirements, SOCA alarm response, or armored vehicle deployments). The identification of site-specific conditions will aid the licensee in determining the specific actions, duties, and responsibilities required to sustain the effectiveness of the physical protection program. Site-specific conditions must be accounted for in the development of the site training and qualification program.

Consistent with Section VI, paragraph A.6 of Appendix B to 10 CFR Part 73, the licensee may not allow any individual to perform any security function, assume any security duties or responsibilities, or return to security duty until that individual satisfies the training and qualification requirements of the Commission-approved Training and Qualification plan. (The Commission recognizes that knowledge, skills, and abilities are perishable or can be lost or forgotten over time.)

Consistent with Section VI, paragraph D.2 of Appendix B to 10 CFR Part 73, to ensure that individuals maintain knowledge, skills, and abilities after their initial qualification, the licensee training and qualification program shall provide for periodic requalification and remedial training, as needed.

**1.3** When determining appropriate training frequencies to ensure knowledge retention of frequently used knowledge, skills, or abilities, the licensee should consider the perishable nature of each knowledge, skill, or ability and give the greatest attention to those that are not used for long periods of time (i.e., between training cycles) but are critical when needed and are most likely to be necessary under high-stress conditions.

Consistent with Section VI, paragraph H of Appendix B to 10 CFR Part 73, licensees shall develop and retain all individual qualification records for each individual who receives training required by the Appendix.

**1.4** In developing their Training and Qualification Plans, licensees should include within this plan the Knowledge, Skills, and Abilities Matrix (Attachment 1) or Critical Task Matrix provided in staff endorsed NEI 03-12, "Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan, [and Independent Spent Fuel Installation Security Program]," as a means to ensure that all of the requirements in Section VI of Appendix B are satisfied. This matrix is composed of knowledge, skills, or abilities upon which all individuals who perform physical protection and/or armed response duties must be trained and qualified. Each activity is described in detail through sub-activities found in this guidance and it is these sub-activities that make up the complete activity and upon which each person identified must maintain qualification and proficiency.

**1.5** The first row of the matrix describes duty positions and functions within positions for members of the security organization. Licensees may choose to include in the matrix facility personnel who perform limited physical protection duties (e.g., package searches outside of the licensee protected area). The final two columns of the matrix must show the licensee's frequency of performance and the method of performance for each sub-activity. Note that knowledge, skills, or abilities that are specified in Section VI of Appendix B to 10 CFR Part 73 to be completed annually and that must actually be performed successfully to be credited are not subject to change using the SAT process.

The following codes are used in the "Performance Method" column of the matrix:

(a) M-Must Perform: The individual must actually perform the indicated activity under the supervision of a qualified individual. This activity must be performed annually as specified in 10 CFR Part 73 and is not subject to change using the SAT process.

(b) P-Perform: The individual performs the actual activity. However, where there is an alternate approach listed, then that may be used to demonstrate adequate ability to perform the activity (e.g., written examinations).

(c) S-Simulate: The individual simulates, under realistic conditions, the completion of the indicated activity.

(d) D-Discuss: The individual must be orally examined to determine the adequacy of knowledge to perform the indicated task. Licensees may substitute a written examination for an oral examination.

**1.6** Where multiple codes are listed, the code listed first is the preferred option and should be followed, unless personnel safety or plant operations would be adversely affected. If this occurs, the departure should be documented providing the basis for invoking the alternate method. "Must Perform" steps should not be changed to "Simulate" or "Discuss."

**1.7** Bracketed and unbracketed "X"—The bracketed "[X]" identifies the knowledge, skill, or ability as a demonstrable activity that may be site-specific (may not apply to all sites). The "X" (unbracketed) identifies a responsible duty position/function and assigns the knowledge, skill, or ability to that duty position/function as identified in the Commission approved licensee Security Plan.

**1.8** Critical tasks identified in the matrix should be assigned to a duty position/function in the Commission-approved Training and Qualification plan.

Consistent with Section VI, paragraph A.7 of Appendix B to 10 CFR Part 73, annual training requirements must be scheduled at a nominal twelve (12) month periodicity.

## 2. Employment Suitability and Qualification

Consistent with Section VI, paragraph B.1 of Appendix B to 10 CFR Part 73, individuals who are assigned security duties and responsibilities must meet minimum requirements to determine their initial and continued suitability (i.e., acceptability) and to ensure that they are and continue to be qualified (i.e., proven capable) to provide the required services before employment or assignment to the security organization. To accomplish this, the licensee training and qualification program shall ensure consistency with Section VI of Appendix B, that all personnel assigned duties and responsibilities required to implement the Commission-approved security plans achieve and maintain an acceptable level of professional competence in the performance of assigned security duties.

Consistent with Section VI, paragraph B.1.(b) of Appendix B to 10 CFR Part 73, the qualification of each individual to perform assigned duties and responsibilities must be documented by a qualified training instructor and attested to by a security supervisor. The licensee shall document each individual's qualification as a record of that individual's demonstrated abilities.

### 2.1 Suitability

Consistent with Section VI, paragraph B.1.(a) and B.1.(b) of Appendix B to 10 CFR Part 73, licensees must ensure and document that individuals satisfy suitability requirements.

2.1.1 Before an individual can be employed by or assigned to the security organization, the licensee shall verify that the individual possesses, at a minimum, a high school diploma or has passed an equivalent performance examination designed to measure basic mathematical, language, and reasoning skills, abilities, and knowledge required to perform security duties and responsibilities.

2.1.2 The Commission has determined that a General Education Development, or GED, test designed to measure basic job-related mathematical, language, and reasoning skills is an acceptable alternative to a high school diploma.

2.1.3 All individuals must have reached the age of 21 before they can be assigned duties and responsibilities involving the possession or use of a firearm and must have attained the age of 18 before they can be assigned duties and responsibilities in an unarmed capacity. The licensee shall establish and implement a reasonable verification process to satisfy this requirement and confirm the age of potential employees before employment or assignment.

2.1.4 To determine suitability, a background check consistent with Section VI, paragraph B.1.(a)(4) must be completed for all personnel who are assigned duties and responsibilities involving the possession of firearms.

2.1.5 Licensees may use the results of background investigations completed consistent with 10 CFR 73.56, "Personnel Access Authorization Requirements for Nuclear Power Plants." Licensees must also ensure that all personnel who will perform armed duties are in compliance with applicable state or federal law, to include the Lautenberg Amendment (1996) to the Gun Control Act (Public Law 104 208, 18 U.S.C. § 922(g)(9)) (Ref. 13).

2.1.6 The licensee must ensure that members of the security organization do not have felony convictions that reflect negatively on the individual's trustworthiness and reliability to perform their assigned duties and responsibilities consistent with Commission regulations.

2.1.7 The licensee should adjudicate potentially derogatory information about an individual consistent with 10 CFR 73.56, whether such information is obtained during pre-employment application or after hiring. In addition, as outlined in the Violent Crime Control Act of 1994 (Public Law 103 322, H.R. 3355) (Ref. 14) and the Lautenberg Amendment (1996) to the Gun Control Act (Public Law 104 208, 18 U.S.C. § 922(g)) Firearm Possession Prohibition, the licensee should ensure that personnel of the security organization do not have any felony convictions involving the use of any type of weapon or any legal restraints preventing the possession of a firearm consistent with the requirements of the U.S. Department of Justice.

## 2.2 Physical Qualifications

Consistent with Section VI, paragraph B.2.(a)(1) of Appendix B to 10 CFR Part 73, individuals whose duties and responsibilities are directly associated with the effective implementation of the Commission-approved security plans, licensee protective strategies, and implementing procedures may not have any physical conditions that would adversely affect their performance of assigned security duties and responsibilities with required performance standards.

## 2.3 General Physical Qualification

Consistent with Section VI, paragraphs B.2.(a)(1) through (4) and B.5.(a) of Appendix B to 10 CFR Part 73, before assignment and annually thereafter, all individuals who are performing security

functions for the security organization must be subject to a physical examination administered by a licensed health professional, with final determination of physical suitability being made by a licensed physician.

2.3.1 The purpose of this physical examination is to verify the individual's physical capability to perform assigned duties and responsibilities, as identified in Commission-approved security plans and implementing procedures.

Physical examinations should be commensurate with assigned duties, and the licensed health professional (e.g. licensed physician, licensed nurse practitioner or licensed nurse) administering the examination should have knowledge of the assigned security duties. Personnel not assigned to the security organization who are performing watchman-type duties required to implement the physical protection program (i.e., personnel performing material searches and personnel assigned to perform vehicle escort duties) must also have physical examinations. In such cases, physical examinations should be limited to the physical attributes required to perform the specific security function.

2.3.2 Licensed physicians making a suitability determination should consider the physical demands associated with the specific security duties of security personnel when certifying the individual's physical capability to perform them. The following are examples of factors the licensed physician should consider when conducting medical certifications for personnel, taking into account the individual's specific duties and responsibilities required to implement the Commission-approved security plans, for duty within the security organization:

(a) results of medical examination;
(b) firearms activities to include the tactical course of fire;
(c) central alarm and secondary alarm station activities;
(d) contraband searches to include vehicle searches;
(e) equipment that individuals need to carry, wear, or operate;
(f) protected and vital area posts and patrol routes; and
(g) ability to respond to contingency events.

## 2.4 Vision and Hearing

Consistent with Section VI, paragraphs B.2.(b) and B.2.(c) of Appendix B to 10 CFR Part 73, the licensee must ensure that personnel assigned duties and responsibilities directly associated with the effective implementation of Commission-approved security plans, licensee protective strategies, and implementing procedures meet minimum requirements for vision and hearing to effectively perform their duties and responsibilities.

Consistent with Section VI, paragraph B.2.(b)(7), an on-the-job evaluation must be performed for personnel who exhibit a mild color vision defect. Consistent with B.2(b)(4), the ability to distinguish red, green, and yellow colors is required.

2.4.1 The evaluation of a mild vision defect should be documented in determining whether the individual can meet the required performance standards.

Consistent with Section VI, paragraph B.2.(c)(2), the use of a hearing aid is acceptable provided that suitable testing procedures demonstrate appropriate hearing levels.

2.4.2 For personnel who utilize a hearing aid, the hearing aid may not decrease the effective performance of the individual's assigned security duties during normal or emergency operations.

## 2.5 Existing Medical Conditions

Consistent with Section VI, paragraph B.2.(d) of Appendix B to 10 CFR Part 73, individuals may not have an established medical history or medical diagnosis of existing medical conditions that could interfere with or prevent the individual from effectively performing assigned duties and responsibilities. If a medical condition exists, the individual shall provide, as described in B.2.(d)(2), medical evidence that the condition can be controlled with medical treatment in a manner that does not adversely affect the individual's fitness-for-duty, mental alertness, physical condition, or capability to otherwise effectively perform assigned duties and responsibilities.

## 2.6 Addiction

Consistent with Section VI, paragraph B.2.(e) of Appendix B to 10 CFR Part 73, individuals may not have any established medical history or medical diagnosis of habitual alcoholism or drug addiction. Where this type of condition has existed, the individual shall provide certified documentation of the completion of a rehabilitation program that would give a reasonable degree of confidence that the individual would be able to perform assigned duties and responsibilities. Additional Commission requirements for certification regarding fitness-for-duty appear in 10 CFR Part 26, "Fitness for Duty Programs" (Ref. 15).

## 2.7 Other Physical Requirements

Consistent with Section VI, paragraph B.2.(f) of Appendix B to 10 CFR Part 73, an individual who has been incapacitated due to a serious illness, injury, disease, or operation which could interfere with the effective performance of assigned duties and responsibilities shall, before resumption of assigned duties and responsibilities, provide documented medical evidence of recovery and ability to perform these duties and responsibilities.

2.7.1 Prior to resumption of duties and responsibilities due to injury, operation, etc., an individual must provide medical evidence of recovery. Evidence of recovery may be provided by a licensed health professional familiar with the specific physical demands of the individual's duties at a nuclear facility and therefore able to verify the individual's physical capability to perform assigned duties and responsibilities.

## 2.8 Psychological Qualifications

Consistent with Section VI, paragraph B.3 of Appendix B to 10 CFR Part 73, armed and unarmed individuals assigned duties and responsibilities directly associated with the effective implementation of the Commission-approved security plans and implementing procedures must demonstrate the required psychological qualifications.

## 2.9 Medical Examinations and Physical Fitness Qualifications

Consistent with Section VI, paragraph B.4.(a) of Appendix B to 10 CFR Part 73, personnel of the security organization shall be subject to a medical examination by a licensed physician to determine their fitness to participate in physical fitness tests.

Consistent with Section VI, paragraph B.4.(a)(1), of Appendix B to 10 CFR Part 73, the licensee shall obtain and retain a written certification from the licensed physician that the medical examination detected no medical conditions that would preclude the individual from participating in the physical fitness tests or meeting the physical fitness attributes or objectives associated with assigned duties.

2.9.1 This examination may be administered by a licensed health professional with the final determination being made by a licensed physician to verify the individual's physical capability to perform assigned duties and responsibilities. The examination and final determination should be conducted by individuals familiar with the specific physical demands of the individual's duties at a nuclear facility and therefore able to verify the individual's physical capability to perform assigned duties and responsibilities.

Consistent with Section VI, paragraph B.4.(b) of Appendix B to 10 CFR Part 73, before assignment, armed security personnel shall demonstrate they are physically fit to perform assigned duties and responsibilities through the conduct of a practical physical fitness test.

As required by Section VI, paragraph B.4.(b)(1) of Appendix B to 10 CFR Part 73, the physical fitness test must include elements that simulate site-specific, scenario-specific, or task-specific conditions and actions associated with the required performance standards. These include the strenuous activity, physical exertion, level of stress, and exposure to elements that are required of an individual to ensure that the individual can effectively perform assigned security-related duties.

2.9.2 To ensure the effectiveness of the physical fitness program, these simulated elements should equate to the normal and emergency conditions that could be encountered at the site.

Consistent with Section VI, paragraph B.4.(b)(4) of Appendix B to 10 CFR Part 73, the physical fitness qualification of each armed member of the security organization must be documented by a qualified training instructor and attested to by a security supervisor.

Consistent with Section VI, paragraph H of Appendix B to 10 CFR Part 73, records must be retained for security personnel consistent with the requirements in 10 CFR 73.55(q).

Consistent with Section VI, paragraphs B.4.(b)(2) and B.4.(b)(3) of Appendix B to 10 CFR Part 73, the licensee shall describe the physical fitness test to be used in its Commission-approved Training and Qualification plan.

2.9.3 An acceptable Training and Qualification plan should describe how the physical fitness objectives for determining strength, endurance, and agility are demonstrated by the physical fitness test.

2.9.4 Each licensee should identify and analyze its site-specific conditions to determine the appropriate elements to be applied for training purposes.

## 2.10 Physical Requalification

Consistent with Section VI, paragraph B.5.(a) of Appendix B to 10 CFR Part 73, armed and unarmed individuals assigned security duties and responsibilities must demonstrate the capability to meet the requirements for physical requalification at least annually.

## 2.11 Documentation

Consistent with Section VI, paragraphs B.4.(b)(4) and B.5.(b), of Appendix B to 10 CFR Part 73, a qualified training instructor must document the physical qualification of each individual to perform assigned duties and responsibilities. A security supervisor must attest to this qualification.

2.11.1 Certification of the physical fitness and physical requalification record should be based on personal observation or input from (1) other qualified training organization personnel; (2) subject matter experts or field training officers; or (3) a medical, psychological, or other professional who is qualified to make such determinations consistent with NRC regulations and applicable local, state, and federal laws to provide suitability and qualification determinations for the category of information addressed by the record.

## 3. Duty Training

Consistent with Section VI, paragraph C.1 of Appendix B to 10 CFR Part 73, all personnel who are assigned to perform security-related duties or responsibilities shall be trained and qualified to perform assigned duties and responsibilities.

This training and qualification should provide the individual with the minimum knowledge, skills, and abilities required for effective performance of assigned duties and responsibilities. This requirement includes personnel assigned to perform security-related duties such as, but not limited to, material searches and vehicle escort. To accomplish this, each individual's training criteria shall include both general and position-specific training determined to be necessary for the effective implementation of the physical protection program and Commission-approved security plans during normal and emergency conditions.

## 3.1 Critical Knowledge, Skills and Abilities (KSAs)

Consistent with Section VI, paragraph C.1(a) of Appendix B to 10 CFR Part 73, the licensee must identify, in the NRC-approved Training and Qualification plan, the knowledge, skills, and abilities (KSAs) that are required by assigned personnel to perform assigned duties and responsibilities.

3.1.1 Before performing security-related duties within the security organization, each individual must be trained and qualified to perform those KSAs applicable to their duty position.

3.1.2 The security-training program should identify specific KSAs necessary for each individual within the security organization to achieve qualification.

3.1.3 During the analysis phase, those responsible for security training should develop a comprehensive list of training elements (expected performance criteria that when taken together, constitute all of the attributes for any single KSA) for each of the KSAs listed in the Training and Qualification plan. The Critical Knowledge, Skills and Abilities Matrix in Attachment 1 provides an example of an in-depth training KSA list for the key positions in the security organization.

3.1.4 The licensee's Commission-approved Training and Qualification plan should reflect the KSAs listed in Attachment 1 unless the activity is not applicable at a specific facility.

Consistent with Section VI, paragraph C.1.(a), of Appendix B to 10 CFR Part 73, licensees shall identify in their Commission-approved Training and Qualification plan the areas of knowledge, skills, and abilities that are required to perform assigned duties and responsibilities.,

3.1.5 Assigned duties and responsibilities should be identified consistent with licensee implementation of unique performance requirements necessary to implement the licensee's Commission-approved security plans, based on site-specific duties.

3.1.6 If a licensee trains and qualifies personnel of the security organization on an enhanced weapon, specific qualification attributes for that enhanced weapon must be included in the licensee's Training and Qualification plan.

3.1.7 The licensee should assign KSAs to a specific duty function (e.g., search officer, access officer, patrol officer, and escort officer).

## 3.2 Security Personnel Training

Consistent with Section VI, paragraph C.1.(a) of Appendix B to 10 CFR Part 73, the licensee must describe in the NRC-approved Training and Qualification plan the areas of knowledge, skills, and abilities required by security personnel to carry out their assigned duties and responsibilities.

3.2.1 When describing the areas of knowledge, skills, and abilities required by security personnel to carry out their assigned duties and responsibilities, the licensee may wish to consider, but is not limited to, including the following security program topic areas during the development of site-specific KSAs:

(a) protection of nuclear facilities and special nuclear material (SNM);
(b) NRC requirements and guidance for physical security at nuclear facilities;
(c) the role of private security officers in providing physical protection for the nuclear industry;
(d) authority of private officers;
(e) use of nonlethal weapons;
(f) use of deadly force as authorized by state or federal law;
(g) power of arrest and authority to detain individuals consistent with local, state, and federal laws;
(h) authority to search individuals and seize property;
(i) adversary group operations;
(j) motivation and objectives of adversary groups;
(k) tactics and force that adversary groups might use to achieve their objectives;
(l) recognition of sabotage-related devices and equipment that might be used against the licensee's facility;
(m) facility security organization and operation;
(n) types of physical barriers;
(o) weapons and lock and key control system operation;
(p) location of SNM and/or vital areas within a facility;
(q) protected area security and vulnerability;
(r) types of alarm systems used;
(s) response to and assessment of alarm annunciations and other indications of intrusion;
(t) general concepts of security systems;
(u) vulnerabilities and consequences of theft of SNM or radiological sabotage of a facility;
(v) protection of security system information;
(w) personal equipment use and operation for normal and contingency operations;
(x) surveillance and assessment systems and techniques;
(y) communications systems and operation;

(z) access control systems and operation for individuals, packages, and vehicles;
(aa) contraband detection systems and techniques;
(bb) barriers and other delay systems around protected access or vital areas;
(cc) exterior and interior alarm systems operation;
(dd) duress alarm operation;
(ee) alarm stations operation;
(ff) response force organization;
(gg) response force mission;
(hh) response force operation;
(ii) response force engagement;
(jj) security command and control system during normal operation;
(kk) security command and control system during contingency operation;
(ll) fixed-post station operations;
(mm) access control system operation;
(nn) search techniques and systems for individuals, packages, and vehicles;
(oo) escort and patrol responsibilities and operation;
(pp) contingency response to confirmed intrusion or attempted intrusion;
(qq) security system operation after component failure;
(rr) security coordination with law enforcement agencies (local, State, and Federal);
(ss) security and situation reporting, documentation, and report writing;
(tt) contingency duties;
(uu) self-defense;
(vv) use of and defenses against incapacitating agents;
(ww) security equipment testing;
(xx) contingency procedures;
(yy) night-vision devices and systems;
(zz) mechanics of detention;
(aaa) basic armed and unarmed defensive tactics;
(bbb) response force deployment;
(ccc) security alert procedures;
(ddd) security briefing procedures;
(eee) response force tactical movement;
(fff) response force withdrawal;
(ggg) response force use of support fire;
(hhh) response to bomb and attack threats;
(iii) response to civil disturbances (e.g., strikes, demonstrations);
(jjj) response to confirmed attempted theft of SNM and/or radiological sabotage of facilities;
(kkk) response to hostage situations;
(lll) response to tampering events;
(mmm) site-specific armed tactical procedures and operation;
(nnn) security response to emergency situations other than security incidents;
(ooo) independent spent fuel storage installation (if applicable – site specific);
(ppp) armored vehicle operations (if applicable – site specific);
(qqq) security limited access areas (if applicable – site specific);
(rrr) remotely operated weapons systems (ROWS) (if applicable – site specific); and
(sss) enhanced weapons (if applicable – site specific).

### 3.3 Training of Personnel

Consistent with Section VI, paragraph C.1 of Appendix B to 10 CFR Part 73, all personnel who are assigned to perform any security-related duty or responsibility shall be trained and qualified to

perform assigned duties and responsibilities to ensure that each individual possesses the minimum knowledge, skills, and abilities required to effectively carry out those assigned duties and responsibilities.

3.3.1 Personnel should be trained and qualified to perform those KSA elements applicable to the security duty position they will fulfill as identified in Section 3.1 of this Regulatory Guide. Personnel shall be re-qualified consistent with Section VI, paragraph D.2 of Appendix B to 10 CFR Part 73 and the Commission-approved Training and Qualification plan.

3.3.2 The licensee should use the same training methodology, delivery, and implementation to train and qualify non-security personnel on specific security-related KSAs as used to train security personnel in the performance of similar KSAs.

## 4. On-the-Job Training

Consistent with the requirements of Section VI, paragraph C.2.(a) of Appendix B to 10 CFR Part 73, the licensee training and qualification program must include on-the-job training (OJT) performance standards and criteria to ensure that each individual demonstrates the requisite knowledge, skills, and abilities to effectively carry out assigned duties and responsibilities consistent with the Commission-approved security plans, licensee protective strategy, and implementing procedures, before the individual is assigned the duty or responsibility.

The licensee shall implement OJT to ensure that individuals have an adequate level of hands-on experience and knowledge in nuclear security functions before they are considered qualified and assigned duties and responsibilities.

**4.1** Licensees may consider the use of a formalized OJT checklist to identify those duties and responsibilities associated with each duty position and job KSA. Typically, OJT is conducted by qualified security training instructors and field training officers and/or subject matter experts designated by the security training staff.

**4.2** A security supervisor must attest to all OJT, and the records must be documented by a qualified training instructor and retained consistent with 10 CFR 73.55(q), "Records."

Consistent with Section VI, paragraph C.2.(b) of Appendix B to 10 CFR Part 73, Individuals who are assigned duties and responsibilities related to implementing the safeguards contingency plan (e.g., response team leaders, alarm station operators, armed responders, and armed security officers designated as a component of the protective strategy) shall complete a minimum of 40 hours of OJT, in which each individual will be required to demonstrate his or her ability to effectively apply the knowledge, skills, and abilities required to effectively perform assigned contingency duties and responsibilities consistent with the approved safeguards contingency plan, other security plans, licensee protective strategies, and implementing procedures. OJT contingency activities and drills must, at a minimum, meet the criteria and objectives stated in regulations.

**4.3** Trained and qualified security personnel reassigned or promoted to new or additional duties and responsibilities should receive OJT commensurate with the newly assigned duty positions.

**4.4** Basic steps of an OJT training program using the SAT for each duty position include the following:

(a) preparation/introduction,
(b) demonstration,

(c) practice, and
(d) documentation of successful demonstration.

**4.5** The licensee should identify each duty position separately within the OJT program. Each duty position should include applicable job KSAs or functions to ensure that the trainee understands the knowledge, skills, and abilities required for effective implementation of the Commission-approved physical security plan, the safeguards contingency plan, and the licensee implementing procedures. The KSAs associated with the following assigned duty positions are described in Attachment 1 of this guide.

Duty Positions:

(a) Armed security officer,
(b) Armed Responder,
(c) Central Alarm Station/Secondary Alarm Station qualified Operators,
(d) Response Team Leader, and
(e) Security Shift Supervisor.

Additional Site Specify Duty Positions:

(a) Access Control Officer,
(b) Search Officer,
(c) Escort Officer, and
(d) Patrol Officer.

Consistent with Section VI, paragraph C.2.(c) of Appendix B to 10 CFR Part 73, the licensee's OJT programs must include, but are not limited to, hands-on application of knowledge, skills, and abilities related to:

(a) response team duties;
(b) use of force;
(c) tactical movement;
(d) cover and concealment;
(e) defensive positions;
(f) fields-of-fire;
(g) re-deployment;
(h) communications (primary and alternate);
(i) use of assigned equipment;
(j) target sets;
(k) tabletop drills;
(l) command and control duties; and
(m) licensee protective strategy.

**4.6** Personnel assigned to provide OJT instruction and oversight should themselves possess and have demonstrated the requisite knowledge, skills, and abilities required to effectively meet the performance standards of the specific duties and responsibilities associated with the OJT.

**4.7** On-the-Job Training Documentation

Consistent with Section VI, paragraph C.2.(b) of Appendix B to 10 CFR Part 73, OJT must be documented by a qualified training instructor and attested to by a security supervisor.

4.7.1 OJT trainers and evaluators conducting the training should implement a methodology that ensures each KSA has been completed satisfactorily. Licensees should ensure the trainee's completion of

KSAs to carry out assigned duties and responsibilities. The licensee should ensure that there is an established procedure for the OJT trainers and evaluators conducting training to document that the trainee has completed the OJT and demonstrated proficiency in the applicable knowledge, skills, and abilities. Once completed, the form would typically be submitted to the qualified security training instructor for final assessment and documentation and a security supervisor must attest to the training.

4.7.2 Licensees may consider creating OJT documentation that identifies the critical attributes associated with each KSA required to perform the duties and responsibilities of all duty positions. A duty position may comprise multiple KSAs, and its description should indicate the appropriate level of knowledge standard required for each KSA. The OJT documentation for individuals who are assigned duties and responsibilities related to implementing the safeguards contingency plan may apply any documented process to log time associated with the performance of OJT to ensure that the trainee has met the program minimum OJT time (40 hours).

## 5. Performance Evaluation Program

Consistent with the requirements of Section VI, paragraph C.3.(a) of Appendix B to 10 CFR Part 73, licensees shall develop, implement and maintain a Performance Evaluation Program that is documented in procedures and describes how the licensee will demonstrate and assess the effectiveness of their onsite physical protection program and protective strategy, including the capability of the armed response team to carry out their assigned duties and responsibilities during safeguards contingency events.

To satisfy the requirements of Section VI, paragraph C.3 of Appendix B to 10 CFR Part 73, the licensee must conduct security tactical response drills and force-on-force (FOF) exercises designed to demonstrate and assess the effectiveness of the licensee's physical protection program, and contingency event response by all individuals with responsibilities for implementing the safeguards contingency plan. These drills and exercises are vital components of a comprehensive training program that enables the security force to gain experience and test personnel performance abilities in tactics, the site's protective strategy, and individually assigned duties and group activities within the contingency response plan.

### 5.1 Tactical Response Drills and Force-on-Force Exercises

Consistent with Section VI, paragraph C.3.(l)(1) of Appendix B to 10 CFR Part 73, each member of each shift who is assigned duties and responsibilities that are required to implement the safeguards contingency plan and licensee protective strategy participates in at least one tactical response drill quarterly and one FOF exercise annually.

5.1.1 Individuals designated as a component of the protective strategy may participate in any of the following roles to satisfy this requirement as a drill participant: security shift supervisor, response team leader, alarm station operator, armed responder, and armed security officer.

5.1.2 The triennial FOF exercise conducted by the NRC may be counted towards the annual FOF exercise(s) for those contingency response personnel that participate in the exercise.

### 5.2 Types of Tactical Response Drills and Force-on-Force Exercises

Consistent with Section VI, paragraph C.3.(d) of Appendix B to 10 CFR Part 73, tactical response drills and FOF exercises must be designed to challenge the site protective strategy against elements of the DBT and ensure that each participant assigned security duties and responsibilities identified in the

Commission-approved security plans, the licensee protective strategy, and implementing procedures demonstrate the requisite knowledge, skills, and abilities.

Consistent with Section VI, paragraph C.3 of Appendix B to 10 CFR Part 73, drills and exercises are training activities that focus on maintaining and improving the knowledge, skills, and capabilities of the individual or the group and thus must be part of the ongoing training provided to the security force personnel.

Consistent with Section VI, paragraph C.3.(f) of Appendix B to 10 CFR Part 73, the scope of tactical response drills conducted for training purposes shall be determined by the licensee; must address site specific, individual or programmatic elements; and may be limited to specific portions of the site protective strategy. Drill plans and drill documentation must clearly identify the elements to be evaluated.

5.2.1 Tactical response drills provide a structured process to train personnel and evaluate key elements of the protective strategy by focusing on specific aspects of the strategy without conducting a fully integrated FOF exercise.

5.2.2 The types of drills may include the following:

(a) Tabletop drills are performed to demonstrate the protective strategy using a mockup of the facility. Tabletop drills allow security force members to demonstrate their understanding of the protective strategy and their individual response requirements. This type of drill may also be used as an evaluation tool for the protective strategy.

(b) Timeline drills are performed to demonstrate the response timelines established for the protective strategy. Drills can be used to test either the validity of the timelines established for the protective strategy or to test the ability of the security response personnel to respond to their assigned response position within the established timeline.

(c) Limited-scope tactical response drills are performed to evaluate the ability of one or more security response force members to effectively implement their protective strategy responsibilities. These drills are conducted as needed for each individual, group, or shift to validate and test the protective strategy.

5.2.3 The structure of a drill or exercise must ensure that it provides a credible, realistic, and comprehensive test of the elements of the protective strategy objectives that the drill or exercise was designed to achieve. Tactical response drills, FOF exercises, and associated contingency response training shall be conducted under conditions that simulate, as closely as practicable, the site-specific conditions under which each member of the security organization will, or may be, required to perform assigned duties and responsibilities. The drill plan and scenarios used should ensure the satisfaction of the key program elements addressed in this section of the RG. Other program elements that support the key program elements should also be considered in the development of drill plans and scenarios to test, evaluate, and improve these areas. Section 5.4 of this RG gives examples of these elements.

5.2.4 FOF exercises are an integrated response exercise that includes the participation of the licensee's response force executing the protective strategy against an opposing force with the characteristics and attributes of the DBT. FOF exercises are designed to train and/or evaluate response force personnel on the complete implementation of the licensee's protective strategy. FOF exercises also allow licensees to evaluate and improve that strategy against the characteristics and attributes of the DBT.

5.2.5 FOF exercises may be characterized as: a) a fully integrated FOF exercise, b) a security response FOF exercise, and c) a limited scope FOF exercise. The fully integrated exercise is used to qualify the minimum number of response force personnel as identified in the site-specific security plan. Following participation as players and satisfying their qualification requirements in the fully integrated exercise, these individuals can be credited for participation in security response and limited scope exercises to fulfill exercise and/or drill requirements for other positions they may be assigned. Individuals not participating as players in the fully integrated exercise are required to participate as players in security response exercises for the purpose of maintaining their qualifications. The limited scope exercise is applicable only to those few individuals not able to participate in fully integrated or security response exercises because of illness, family leave, military deployment, or other unavoidable circumstances keeping the individuals from fulfilling the requirements of Section 5.3 of this guide, which further discusses player participation in these drills.

(a) Fully integrated FOF exercises. These exercises consist of a planned response effort across various plant disciplines (e.g., local law enforcement agency (LLEA), security, plant operations, and emergency preparedness) to minimize or mitigate the threat.

(b) Security response FOF exercises. These exercises involve the full security response force and a mock adversary force without a planned response effort across various plant disciplines (e.g., LLEA, plant operations, and emergency preparedness) and focus primarily on security response.

(c) Limited scope FOF exercises. These exercises focus on the security response by using the minimum number of members of the response force and the mock adversary team sufficient to execute the scenario being tested. They should be a credible, realistic, and thorough test of a portion of the site protective strategy and evaluate the key security program performance elements bounded by the DBT. The exercise provides scenario controls and exercise controllers and includes a post-exercise critique and required exercise documentation.

5.2.6 Consistent with Section VI, paragraph C.3.(l)(1) of Appendix B to 10 CFR Part 73, the licensee must ensure that at least one fully integrated site FOF exercise is conducted annually. Licensees may wish to conduct such exercises more frequently, where the need is indicated, to ensure proficiency in integrated response for an actual event or NRC-evaluated exercise.

## 5.3 Defining Participation

Consistent with Section VI, paragraph C.3.(l)(1) of Appendix B to 10 CFR Part 73, each member of each shift who is assigned duties and responsibilities required to implement the safeguards contingency plan and licensee protective strategy must participate in at least one tactical response drill quarterly and one FOF exercise annually.

Consistent with 10 CFR 73.55(d)(3), the licensee may not permit any individual to implement any part of the physical protection program unless the individual has been trained, equipped, and qualified to perform their assigned duties and responsibilities consistent with Appendix B of 10 CFR Part 73 and the licensee's Training and Qualification Plan.

Consistent with Section VI, paragraph C.3.(h) of Appendix B to 10 CFR Part 73, licensees shall document the scenarios and participants for all tactical response drills and annual FOF exercises.

5.3.1 Individuals designated as a component of the protective strategy should participate in one of the following roles to satisfy the participation requirement as a player: security shift supervisor, response team leader, alarm station operator, armed responder, or armed security officer.

5.3.2 Individuals who are trained and qualified to fill multiple-response positions during a contingency event must participate annually as a player in drills or exercises for each position for which they are qualified. This requirement can be satisfied by participating in each position during the course of four quarterly drills and one annual exercise during the year (e.g., a security force member can serve as a response team leader in the first quarter drill, a central or secondary alarm station operator during the second quarter drill, and an armed responder in the annual exercise). For example, an armed security officer may also be designated as an armed responder. If the armed security officer has participated in the quarterly response drills and annual force-on-force exercise, that individual has met the requirement in Section VI, paragraph C.3.(l)(1) of Appendix B to 10 CFR Part 73 and need not participate in separate drill and exercises as an armed responder. During the 3-year training cycle, this participation should be rotated so that the security force member gains experience in each position in various drills and exercises.

5.3.3 Individuals who do not participate as a player in scheduled annual FOF exercises because of illness, family leave, military deployment, or other circumstances can fulfill the annual FOF exercise participation requirement by one of the following:

(a) completion of initial 40-hour protective strategy OJT and additional site-specific protective strategy OJT for any additional qualified positions (alarm station operator, response team leader) as outlined in Section 4 of this guide, or

(b) participation as a player in a limited scope FOF tactical exercise with the following characteristics:

(1) focuses only on the security response by using only the members of the response force and the mock adversary team sufficient to execute the scenario being tested;
(2) credibly, realistically, and thoroughly tests a portion of the site protective strategy;
(3) evaluates the key security program performance elements bounded by the DBT, as identified in Section 5.4.1.(a) through (f) of this guide;
(4) includes appropriate additional program elements as identified in Section 5.4.2.(a) through (o) of this guide;
(5) provides scenario controls and exercise controllers; and
(6) includes a post-exercise critique and required exercise documentation.

**Note:**

Response team member (player) resources used to support and achieve the objective of the limited scope exercise may receive credit for their annual force-on-force exercise requirement. Licensees may consider using additional response team members who are trained and qualified on multiple-response team duties to assist them or augment them in meeting their participation requirements.

5.3.4 When planning drills and exercises, personnel should be identified to fill each of the roles and response team duty positions and duty functions required to support the selected scenario and the type of drill or exercise being conducted.

## 5.4 Key Program Elements

5.4.1 The licensee should use, but is not limited to, the following program elements of the protective strategy in developing scenarios for tactical response drills and FOF exercises to demonstrate an effective protective strategy.

a) Be designed to meet the performance requirements and objectives of § 73.55(a) through (k).
b) Identify predetermined actions, areas of responsibility and timelines for the deployment of armed personnel.
c) Contain measures that limit the exposure of security personnel to possible attack, including incorporation of bullet resisting protected positions.
d) Contain a description of the physical security systems and measures that provide defense-in-depth, such as physical barriers, alarm systems, locks, area access, armaments, surveillance, and communications systems.
e) Describe the specific structure and responsibilities of the armed response organization to include:

- The authorized minimum number of armed responders, available at all times inside the protected area.
- The authorized minimum number of armed security officers, available onsite at all times.
- The total number of armed responders and armed security officers documented in the approved security plans as a component of the protective strategy.

5.4.2 To be an effective evaluation tool, each tactical response drill should include at least one of the program elements identified in section 5.4.1(a) through (f) above. A FOF exercise should include all of the program elements. The following additional program elements also contribute to the successful demonstration of the key elements:

(a) coordination and planning;
(b) command and control;
(c) communications;
(d) alarm station operations;
(e) individual responder tactics;
(f) team response tactics;
(g) use of deadly force as authorized by federal or state law;
(h) alarm assessment and intrusion detection equipment;
(i) access control and search equipment;
(j) weapons handling and proficiency;
(k) controller participation;
(l) post-drill briefing and critiques;
(m) integrated response (plant operations, LLEA, and/or Emergency Preparedness);
(n) proper use of defensive positions; and
(o) deployment of responders and equipment.

## 5.5 Drill and Exercise Scenario Development

The effectiveness of a drill or exercise as an evaluation tool largely depends on the scenario development phase. To satisfy the requirements of Section VI, paragraph C.3.(d) of Appendix B to 10 CFR Part 73, "Performance Evaluation Program," the proposed scenario must be designed to ensure that it adequately challenges the selected program elements. With a properly planned scenario, the critique and evaluation can provide meaningful insights into the effectiveness of the protective strategy and any enhancements or corrections that may be needed.

Consistent with Section VI, paragraph C.3 of Appendix B to 10 CFR Part 73, the licensee must develop a scenario to support the conduct of each drill or exercise.

5.5.1 The scenarios should be designed to encourage open decision-making consistent with the protective strategy. In some cases, the scope of a drill may be more narrowly focused and not involve an adversary team. In those cases, only the relevant planning elements need be included. During scenario planning, attention to the key program elements is essential to the effectiveness of the drill or exercise as an evaluation tool. The design of the scenarios must ensure that they evaluate the effectiveness of the licensee's protective strategy. Since drills or exercise scenarios are developed based upon the licensee's protective strategy, they are typically considered Safeguards Information and controlled consistent with 10 CFR 73.21.

5.5.2 The licensee should implement a process that ensures changes to the configuration of established equipment and systems related to target set components are considered in the licensee's scenario development for drills and FOF exercises. The scenario package(s) should ensure that the licensee has designed and developed drills and exercises that take into account all modes of operation (i.e., operating at power, refueling, or other major maintenance activities). In addition, the licensee should consider the impact that various modes of operation have on the licensee's protective strategy; specifically, the impact that these modes of operation have in the following areas:

(a) responder timelines and positioning;
(b) potential compensatory posts;
(c) changes in the configuration of delay barriers;
(d) temporary modifications to the security plan to support activities that impact the safety/security interface;

(e) effects on fields of fire; or
(f) changes to target sets.

## 5.6 Identification of Target Sets

5.6.1 Drill and exercise scenarios should also be developed with target sets as a basis for the scenario. Target sets selected for a drill or exercise should pose the greatest challenge to the protective strategy. Target sets that have a small number of components, that are easily accessible, or whose component locations are in close proximity may be considered "attractive" target sets and may be an optimum choice for a drill or exercise scenario. Scenarios involving attractive targets generally can be the basis of improvements to physical protection systems and protective strategies.

5.6.2 The licensee may take credit for operator actions that protect a target set from destruction or disablement only if that operator action is listed as a component of the target set as described in 10 CFR 73.55(f), and is therefore consistent with the criteria of credible operator actions consistent with RG 5.81, "Target Set Identification and Development for Nuclear Power Reactors." A licensee may not take credit for actions or equipment outside of the predetermined target set for the purpose of determining the effectiveness of the protective strategy or the capability of security personnel to carry out their assigned duties and responsibilities. Credit for operator actions within a target set will be given only if the following criteria are met:

(a) sufficient time is available to implement these actions;
(b) environmental conditions allow access where needed;
(c) adversary interference is precluded;

(d) any equipment needed to complete these actions is available and ready for use;
(e) approved procedures exist; and
(f) training is conducted on the existing procedures under conditions similar to the scenario assumed.

## 5.7 Simulations and Artificialities

5.7.1 Drill and exercise scenarios should be developed to challenge the execution of the protective strategy during a variety of environmental and plant conditions. To replicate these conditions, it may be necessary to incorporate certain artificialities into the drill or exercise scenarios. Plant conditions identified in the scenario may range from operating at power to refueling or other major maintenance activities.

5.7.2 Environmental conditions identified in the scenarios should include time of day or night, and, if possible, the drill or exercise should be conducted during the time identified to address relative daylight or darkness and various conditions of security readiness. If no acceptable artificialities are available for use or it is unsafe to incorporate the conditions into the drill or exercise scenario, a tabletop method may be used to simulate that condition, consistent with the licensee's site-specific analysis for how that specific condition affects implementation of NRC requirements.

5.7.3 The scenario may also need to include other intricate artificialities to simulate actions and activities that cannot actually be performed for reasons of practicality and the safety of personnel and plant equipment.

5.7.4 During scenario development, activities such as the use of firearms with blank ammunition and the use of mock explosive devices, and the presence of drill or exercise participants in certain areas should be considered to ensure the continued safe operation of the plant and the safety of personnel. Drill and exercise scenarios should be developed to accommodate overall safety through the incorporation of acceptable artificialities to simulate the occurrence of these actions and activities (e.g., the inclusion of task times, timeouts, tabletop exercises). Additional discussion may be found in RG 5.74 (Ref. 16), "Managing the Safety/Security Interface."

5.7.5 Simulations and artificialities may apply to both armed responders and mock adversaries and should be thoroughly integrated and accounted for during the planning process. To enable controllers to properly inject simulations and artificialities into the scenario and oversee the actions resulting from them, the licensee's drill and exercise scenario matrix should incorporate specific guidance for simulations and artificialities. The licensee should try to minimize the number of simulations and artificialities in the development of scenarios to ensure that each scenario provides an accurate performance standard.

## 5.8 Cautions and Restrictions

5.8.1 Certain areas of the plant, such as the control room and areas where work is ongoing may be considered off limits to drill or exercise activity. Participants should receive this information at the drill or exercise briefing along with details of how the activities will be simulated or affected by these areas being off limits to drill or exercise activity. In addition, the following should be treated with special awareness during drill and exercise planning:

(a) areas with sensitive plant equipment;
(b) personnel safety;
(c) radiological controls;

(d) foreign material exclusion areas; and
(e) confined space areas.

## 5.9 Communications

5.9.1 The means of communication for the drill or exercise activity should be designated during the preparation phase. Planning for communication needs should consider plant operations, the on-duty security force, the participants, the controllers, and the adversaries, as well as a means to communicate the conduct of the drill or exercise to all plant personnel.

## 5.10 Scheduling and Planning

Consistent with Section VI, paragraph C.3.(l)(2) of Appendix B to 10 CFR Part 73, planners must ensure that the drill or exercise scenario maintains consistency with the DBT of radiological sabotage established by the Commission. The mock adversary force used in either FOF or licensee exercises must replicate, as closely as possible, the adversary characteristics and capabilities of the DBT, and be capable of exploiting and challenging the licensee's protective strategy, personnel, command and control, and implementing procedures.

5.10.1 The licensee should consider developing and maintaining a schedule that supports the drill or exercise plan to ensure the efficiency and productivity of drills and exercises. In schedule development, the licensee should consider factors such as projected station outage schedules, requalification requirements, and FOF tactical exercise requirements.

5.10.2 An effective program schedule would provide a detailed listing of the following:

(a) type of drills/exercises to be conducted;
(b) when the drills/exercises will be conducted;
(c) key program elements or evaluation standards to be satisfied by the planned evolution; and

(d) the participants in the evolution.

5.10.3 The licensee should consider use of a structured plan to assist in the coordination, execution, and documentation of activities associated with the drill and exercise process. The plan can provide consistency to the process and help ensure satisfaction of all program requirements. The plan is also the foundation of the remainder of the drill or exercise documentation. The drill or exercise plan should address the following:

(a) drill or exercise specifics (number, date, shift/personnel involved, location);
(b) pre-notifications (operations, radiation protection, station management, etc.);
(c) safety briefings;
(d) radiological briefings;
(e) specific drill objectives or key elements evaluated;
(f) participants (players, controllers, adversaries);
(g) adversary characteristics (equipment, tactics, actions taken, target, etc.);
(h) scenario being used;
(i) sequence of events (event description, anticipated response, estimated timelines);
(j) development of a controller matrix (written scenario for controllers) to outline scenario events;

(k) simulations and artificialities to be considered or integrated into the evolution safety review;

(l) adversary briefings (providing details of the scenario, equipment used, routes, targets, etc., and allowing for intelligence-gathering from an insider);

(m) controller/evaluator briefings (scenario, assignments, simulations, cautions, concerns, etc.);

(n) equipment consideration;

(o) initial plant/security status; and

(p) what security personnel assignments are being tested.

5.10.4 In planning the drill or exercise, it is important for the integrity of the process that the confidentiality of the scenario be maintained.

## 5.11 Command and Control of Drills and Exercises

5.11.1 A system of command and control is necessary to ensure maintenance of an environment free of the recognized hazards associated with tactical drills and exercises. The command and control system helps to ensure that the rules of engagement are followed, and hazards and safety concerns are appropriately addressed. Industry experience in the conduct of tactical drills and exercises as well as emergency preparedness exercises have demonstrated the need for a structured command and control process. This structure includes the reporting relationship of all controllers to the lead controller.

5.11.2 All tactical drills and exercise activities must be regulated by controllers and should be conducted under the guidance and supervision of a lead controller.

Consistent with Section VI, paragraph C.3.(l)(4) of Appendix B to 10 CFR Part 73, drill and exercise controllers must be trained and qualified to ensure that each controller has the requisite knowledge and experience to control and evaluate exercises.

5.11.3 Licensees should ensure that the training program established for drill and exercise controllers includes a safety component that articulates the licensee's personnel safety considerations for drills and exercises.

5.11.3 An exercise command and control system depends on a cadre of qualified personnel selected and specifically trained to conduct tactical drills and exercises. In addition to being trained to oversee exercises, controllers should receive training commensurate with the scope, complexity, and special nature of the activity.

5.11.4 A controller's primary responsibility is ensuring safety during drill or exercise engagement. The controller organization should be structured in a manner that facilitates the control of all affected locations and the control and coordination of all events to be initiated during an exercise.

## 5.12 Controller Training and Qualification Process

Consistent with Section VI, paragraph C.3.(l)(4) of Appendix B to 10 CFR Part 73, drill and exercise controllers must be trained and qualified to ensure that each controller has the requisite knowledge and experience to control and evaluate exercises.

The following sections provide a basic overview of an acceptable process to ensure consistent development and implementation of controller training and qualification. These sections also describe the training feedback process to ensure continual improvement in both industry wide and site-specific training programs.

5.12.1 The goals of the process are the following:

(a) establish a common baseline of controller knowledge, skills, and abilities;
(b) identify and respond to station and industry controller performance gaps;
(c) facilitate peer sharing of controller resources for exercise activities; and
(d) provide a feedback loop to support continual improvement in controller performance.

## 5.13 Controller Knowledge and Experience

Consistent with Section VI, paragraph C.3.(l)(4) of Appendix B to 10 CFR Part 73, each controller shall have the knowledge and experience to control and evaluate exercises/drills.

5.13.1 This includes the ability to:

(a) Provide timely and accurate information to drill players and participants to ensure consistent and orderly continuation of the drill or exercise in line with the scenario.

(b) Evaluate the application of the no-play area (to include radiation boundaries) and control measures.

(c) Evaluate tactical decisions and movements made by the mock adversary force to include alternate avenues of approach, entry points, targets of opportunity, and control measures and tools required to facilitate entry.

(d) Evaluate the application of the use of cover and concealment to include natural and fabricated defensive positions by all exercise players. This includes defensive positions and/or re-deployment, if required by the exercise.

(e) Evaluate the tactical use of exercise weapons comprising their effective range and capabilities, including fields-of-fire.

(f) Evaluate the application of target identification, acquisition, and engagement by players.

(g) Evaluate the tactical use of hand-carried explosive devices on equipment and personnel and their effects upon detonation.

(h) Evaluate the effectiveness of body armor employed by players and its ballistic protection during the exercise.

(i) Evaluate the effectiveness of gas masks, or other supplemental gear, employed during the conduct of the exercise.

5.13.2 All controllers need to be aware of the entire exercise scenario, including the actions expected of the participant they are monitoring. The controller should evaluate actions that deviate from the expected scenario to ensure that the intent of the exercise scenario is being realized. In addition, licensees should also consider requiring that controllers have knowledge and experience in the following areas:

(a) the use and understanding of the dispersal and effects of chemical agents and smoke grenades;

(b) the gas mask used and its limitations;

(c) the overall procedure for conducting FOF exercises, including the use of Multiple Integrated Laser Engagement System (MILES) equipment;

(d) applicable site-specific delay barriers and movement timelines;

(e) the site's policy on use of deadly force; and

(f) exercise and site safety procedures.

## 5.14 Training Design, Development, and Implementation

Consistent with Section VI, paragraph C.3.(l)(4) of Appendix B to 10 CFR Part 73, all controllers shall complete controller training before participating as a controller in any drill or FOF exercise. Consistent with Section VI, paragraphs C.1.(b) and D.2 of Appendix B to 10 CFR Part 73, controllers shall complete initial or refresher training within the 12 months preceding their participation in an annual FOF exercise to ensure currency of controller knowledge and familiarity with industry and station controller issues.

5.14.1 Licensees should develop controller training lesson plans and learning objectives for initial and refresher controller training. The controller training program should include, but not be limited to, the following:

(a) procedures, guidelines, and references;
(b) introduction/history;
(c) safety and safe drill play;
(d) communication (primary and alternate);
(e) terminology;
(f) command and control;
(g) providing acquired information to players;
(h) controller knowledge;
(i) position and exercise pace;
(j) rules of engagement and the use-of-force;
(k) use and effects of explosives;
(l) rules of conduct;
(m) MILES equipment and limitations;
(n) site exclusion areas;
(o) temporary breaks in drill execution;

(p) response team duties;
(q) critique process; and
(r) use and control of safeguards information.

5.14.2 The training, at a minimum, should include site-specific information (e.g., industrial safety requirements, weapons handling safety requirements, radiological safety, delay barrier movement timelines, and use of state laws related to use of deadly force). It should also include, but not be limited to, the following example scenarios and/or practical demonstrations related to controller activities and calls:

(a) drill timeline coordination (situational awareness and proper cue injects);
(b) cover and concealment assessment;
(c) MILES/Saab equipment usage and safety;
(d) red (training) gun equipment usage, application, and safety;
(e) use of assigned equipment;
(f) target set equipment;
(g) licensee protective strategy;
(h) simulations related to gas masks;
(i) simulations related to smoke or other chemical agents (e.g., CS gas (chlorobenzylidenemalononitrile), CN gas (chloroacetophenone));
(j) weapons/explosives capabilities and simulation methods; and
(k) safety control.

5.14.3 Controllers should maintain proficiency by routine participation in station FOF exercises.

5.14.4 In addition to the described training, the selection of controllers for specific assignments must consider previous experience, skills, and physical abilities. For example, an adversary controller for a FOF exercise should have previously functioned in that position and have the physical capabilities to remain with the adversary force. The controller briefing for FOF exercises should include just-in-time training to remind controllers of specific situational calls, safety issues, and critical communications that they could encounter during the scenario.

5.14.5 The level of support needed for the conduct of a drill will be significantly less than for an exercise, depending on the complexity of the drill. The licensee may consider the following positions of responsibility and personnel when planning for drills and exercises:

(a) Lead Controller - the exercise leader with an overall knowledge of security shift operations. This individual may be selected from the security staff or other organization as appropriate.

(b) Controllers - designated individuals assigned to specific participants or areas that have the necessary training to observe, evaluate, and control the drill or exercise activities of their assigned participant or control area.

(c) Adversaries - appropriately equipped and trained mock attackers with the required physical abilities to engage the licensee exercise participants in an armed attack to test their ability to defend against the DBT. Within the control and safety parameters established for the exercise, the adversary team will actually perform the normal physical and tactical activities (i.e., movement, communication, and carrying of simulated explosives and equipment) required to accomplish their assigned mission. To execute such operations and tactics, it is essential that adversary team members are trained in

small-unit tactics and scenario planning. In addition, the adversary team should be provided with sufficient time to prepare for the mission (this includes scenario planning and rehearsal opportunities). Typically, the adversary force is from the licensee's security force, from other nuclear plants, or from local law enforcement tactical response units.

(d) Insider - a knowledgeable individual who provides inside intelligence information to the mock adversaries. This individual could be a member of the plant technical staff, operations staff, or the security force. Before a drill or exercise, sufficient time should be allotted for the adversary team to gain intelligence information from the insider.

(e) On-Duty Security Force - non-drill personnel who are used during an FOF tactical exercise to ensure that the exercise meets all requirements identified in the site-specific physical security plan and procedures.

(f) Central Alarm Station (CAS)/Secondary Alarm Station (SAS) Participants - security force members stationed in the alarm stations who will perform CAS/SAS duties as drill participants during the drills and exercises. They will be briefed on drill conditions as required.

(g) Security Drill or Exercise Players - security responders who respond to the mock security contingency event (i.e., response team leaders, alarm station operators, armed responders, and armed security officers designated as a component of the protective strategy).

(h) Plant Operations Participant(s) - individual(s) who would normally be assigned to a command and control function. Plant operations personnel should participate when significant simulated plant operations are expected from the scenario. Only plant operator actions listed in a target set should be used in determining whether an entire target set was compromised. If credit is taken for plant operator actions, an evaluation must be conducted to ensure that actions credited as part of the target set for mitigation or recovery are achievable under the postulated scenario conditions.

5.14.6 Licensees should ensure that sufficient documentation has been retained to demonstrate that training has been completed for exercise controllers.

## 5.15 Mock Adversary Force Member Training and Qualification Process

5.15.1 Tactical response drills, force-on-force exercises and associated contingency training must simulate as closely as possible those site-specific conditions under which each member of the security force will be expected to carry out assigned duties. Licensees should use the following training performance standards to help ensure that the mock adversary force (MAF) performance is credible and sufficiently well-trained. These standards facilitate successful MAF participation in realistic challenges as a basis for effective evaluation of a licensee's contingency response performance capabilities during FOF exercises. This section provides a basic overview of an acceptable process to ensure consistent development and implementation of MAF training and qualification. This section also describes the training feedback process to ensure continual improvement in both industry wide and site-specific training programs.

The goals of the process are:

(a) establish a common baseline for MAF knowledge, skills, and abilities;
(b) identify and respond to site and industry MAF performance gaps and generic issues;

(c) facilitate peer sharing of MAF resources for exercise activities; and
(d) support continual improvement in controller performance.

5.15.2 The following physical qualifications should be maintained by MAF members:

(a) Annual medical examination by a licensed physician to certify that the individual is physically fit and able to perform under high levels of stress in inclement weather and/or during strenuous physical exertions without undue foreseeable medical risks.

(b) Each MAF member should report any known or suspected change in health or physical capabilities that might impair his or her mental or sensory capacity and/or agility or otherwise impact their safe and effective performance.

(c) The MAF member should possess the mental, sensorial, and motor skills required to safely and effectively perform all assigned tasks. Medical qualifications should include (1) mental alertness and reliable judgment; (2) acuity of senses and ability of expression sufficient to allow accurate communication by written, spoken, audible, or other signals; and (3) motor power, range of motion, neuromuscular coordination, and dexterity.

(d) After medical certification by a licensed physician, each MAF candidate should meet the physical fitness standards of being able to run (1) a mile in a maximum qualifying time of 8.5 minutes and (2) a 40-yard prone-to-run dash with a maximum qualifying time of 8 seconds.

(e) The MAF should be physically capable of performing or simulating DBTs in an effective and timely manner.

## 5.16 Mock Adversary Force Member Knowledge, Skills, and Abilities

Consistent with Section VI, paragraph C.3.(l)(2) of Appendix B to 10 CFR Part 73, the MAF replicates, as closely as possible, adversary characteristics and capabilities of the DBT and be capable of exploiting and challenging the licensee's protective strategy, personnel, command and control, and implementing procedures.

5.16.1 Each MAF member should have the knowledge, skills and abilities to do the following:

(a) Demonstrate a thorough understanding of DBT weapons and ammunition, munitions, and their capabilities. Demonstrate qualifications consistent with the requirements applicable to an Armed Responder as provided in Section VI of Appendix B to 10 CFR Part 73. The licensee should ensure that site-specific requirements needed to ensure individual MAF member performance or participation in site activities have been completed prior to performance or participation in any site activity.

(b) Demonstrate competency in individual and team tactical movement under both day and night conditions and in various environmental conditions.

(c) Demonstrate tactical communication skills (e.g., radio discipline, use of hand signals) that include providing timely and accurate information to the controllers to ensure consistent and orderly continuation of the drill or exercise in line with the scenario. This includes demonstration of techniques for authenticating human assets (e.g., authentication code, color-coded identification).

(d) Understand the entire exercise scenario up to and including the DBT. This includes positioning and exercise/drill pace (timelines).

(e) Understand the application of the no-play area (to include radiation boundaries), areas described in Section 5.8 of this RG, and control measures.

(f) Implement adversary tactics, techniques, and tactical decisions to include alternate avenues of approach, entry points, targets of opportunity, and control measures and tools required to facilitate entry. This should include door breaching and dynamic room entries.

(g) Demonstrate the application of the use of ~~topical~~ topographical analysis (water, woodland, industrial) and tactical maneuvers in each of these environments, taking advantage of cover and concealment opportunities. This may include the use of smoke.

(h) Demonstrate the tactical use of drill/exercise equipment and weapons, including their effective range and capabilities (including specialized equipment and weapons).

(i) Understand target identification, acquisition, and engagement by players, including rules of engagement.

(j) Demonstrate the tactical use of hand-carried explosive devices and grenades on equipment and personnel and their effects upon detonation. This should include the placement of door charges and equipment charges.

(k) Understand the effectiveness of body armor employed by players and its ballistic protection during the exercise.

(l) Understand the rapid, violent, individual and small-unit movement, maneuver, and attack characteristics.

(m) Understand the techniques to test/defeat detection and assessment sensors and barriers, including microwave (mono and biostatic), E-field, buried sensors (e.g., seismic), infrared (active and passive), and video motion detector.

(n) Understand the use, effects, and dispersal characteristics of chemical agents and smoke grenades.

(o) Understand the features of any gas mask being used and its limitations in a stressful environment.

(p) Understand operational planning including the analysis of a site-protective posture and in planning a mission with available resources (e.g., collusion with an insider).

(q) Understand the differences between the various types of insiders and how to use each type of insider effectively to obtain intelligence information and collect data.

(r) Understand the use of MILES equipment.

(s) Understand red gun equipment usage, application and safety.

(t) Demonstrate a thorough understanding of DBT firearms knowledge, including safety, marksmanship, and manipulation skills with all weapons described in the DBT, or that might reasonably be expected to be deployed. Training should include a course of fire to enhance proficiency to shoot on the move and while wearing a gas mask. Firearms training should also include manipulation and stoppage-clearing techniques, fire discipline, and precision-shooting techniques.

(u) Demonstrate firearms proficiency with a minimum of 80-percent accuracy with all types of weapons that might reasonably be employed during FOF drills or exercises.

(v) Understand the function, design, and capabilities of applicable site-specific delay barriers and movement timelines.

(w) Understand the site's policy on the use of deadly force.

(x) Understand exercise and site safety procedures including procedures, guidelines and references, and the procedures for the use and control of safeguards information.

## 5.17 Mock Adversary Force Member Training Design, Development, and Implementation

5.17.1 The site adversary training program should build upon the following learning objectives:

(a) The adversary force training, knowledge, and skills consistent with 10 CFR 73.1(A);

(b) Rules of engagement; and

(c) Adversary characteristics consistent with 10 CFR 73.1 and the ACD.

5.17.2 Licensees should develop MAF member training lesson plans and learning objectives for initial and refresher MAF training.

(a) MAF training should include site-specific information, industrial safety requirements, weapons safety requirements, radiological safety, delay barrier movement timelines and use of deadly force. It should also include example scenarios and/or practical demonstrations related to MAF activities such as the following:

(1) drill timeline coordination (situational awareness and proper cue injects);
(2) cover and concealment assessment;
(3) individual and team tactical movement;
(4) physical security systems and barriers;
(5) any specialized equipment;
(6) MILES equipment usage and safety;
(7) red gun equipment usage and safety;
(8) weapons/explosives capabilities and simulation methods; and
(9) safety control.

(b) All MAF members should complete this basic MAF training before participating in a FOF exercise. Completion of the training should be documented. To ensure currency of MAF knowledge and familiarity with industry and station controller issues, MAF members should complete documented initial or refresher training within the 12 months

preceding their participation in an annual FOF exercise. Additionally, MAF members should maintain proficiency by routine participation in station FOF exercises.

(c) In addition to the described training, the selection of MAF members for specific assignments should consider previous experience, skills, and physical abilities. For example, a MAF member for an FOF exercise should have previously functioned in that position and should have the physical capabilities to remain with the MAF. The MAF briefing for FOF exercises should include just-in-time training to remind MAF members of specific situational calls, safety issues, and critical communications that they could encounter during the scenario.

## 5.18 Conduct of Drills and Exercises

5.18.1 Safety during the conduct of drills and exercises is a significant element of the security-training program. Regardless of the scale of the evolution, preparation, coordination, and control are key elements to the effectiveness of a drill or exercise.

5.18.2 To ensure exercise safety and provide consistent and effective performance, the licensee should consider the following criteria when conducting drills or exercises:

(a) Weapons/Ammunition Safety—Weapons and ammunition safety is paramount. It is crucial that proper attention is given during exercise planning and performance to ensure that drill participants do not carry or have available live-fire weapons or ammunition. The adversaries and the response force team should use training weapons that are easily identifiable as such. Weapons should be marked so they can be easily identified as training weapons. Live-fire weapons should not be used during drills or exercises. If a live-fire weapon is used, it should be rendered safe and incapable of firing.

(b) Exercise Participant Safety—The following criteria should be part of the safety briefing for exercise participants:

(1) Physical contact should occur only after a participant has been disabled, surrendered, or neutralized and only with the approval of a controller.
(2) No attempt should be made to disarm an opponent in any way.
(3) All ascents and descents from elevated positions will involve a ladder, stairway, or other safe method.
(4) There should be no jumping from one elevation to another.
(5) All exercise controllers and participants will be briefed on the radiological and industrial safety restrictions and concerns.
(6) Participants should monitor their own condition for overexertion.
(7) Anyone who observes an injured or ill participant should immediately call a timeout, render assistance, and notify a controller/evaluator or call the CAS or SAS.
(8) The lead controller should discuss plant and weather conditions before the start of each exercise and address limitations on running, jogging, or walking.
(9) All participants should use personal protective equipment unless otherwise determined by a controller.

(c) Initiation and Termination - The lead controller should initiate the exercise with the concurrence of the on-duty security supervisor and operations shift manager/supervisor, if applicable. The initiation of the exercise should be communicated on appropriate radio

frequencies and/or the plant paging system. The lead controller should conduct radio checks as appropriate to ensure that all controllers are prepared for the initiation or resumption of the drill or exercise. The exercise will be terminated when one or more of the following occur:

(1) all adversaries are neutralized or have given up the mission;
(2) a complete target set has been destroyed;
(3) it is determined that an actual condition exists that cannot be quickly corrected or is of such magnitude as to preclude the continuation of the drill;
(4) a condition adverse to personnel or plant safety exists; or
(5) the lead controller directs that the exercise stop.

5.18.3 Participant Responsibilities

The licensee's briefing should include, but is not limited to the following criteria for participants on their duties and responsibilities associated with the exercise:

(a) Each participant is personally responsible for his or her safe conduct.

(b) Each participant should monitor his or her condition.

(c) Participants who hear an announcement to stop the exercise should immediately stop all exercise activity and maintain their position until they receive additional instructions.

(d) Participants will comply with all plant operations, security, and radiation protection requirements. The pre-exercise safety briefing will address radiation protection entry and exit procedures.

(e) All participants should follow controller commands and requests. Participants should maintain contact with their assigned controller. If during the conduct of the drill or exercise the participant identifies that there is no longer a controller monitoring drill or exercise activity, they should stop and contact the lead controller. The post-exercise critique should address differences in interpretations of scenario evolutions.

(f) After the conclusion of the drill or exercise and before the critique, all participants should have an opportunity to document their participation in the drill or exercise so that their actions may be discussed and reviewed in the critique process.

5.18.4 Rules of Conduct

The licensees should consider including the following rules of conduct as part of the briefing for participants on the conduct of the drill or exercise:

(a) Safety is paramount. The safety of participants, controllers/evaluators, plant personnel, and the plant should never be compromised.

(b) If identifying clothing or items such as armbands are assigned, participants should wear them at all times during the drill or exercise.

(c) Participants will follow all instructions given by a controller.

(d) Any participant may stop the drill or exercise for safety reasons. The lead controller should determine the resumption of the drill or exercise.

(e) If the drill or exercise is temporarily halted, all participants should stop at their locations, cease all firing and movement, and wait for direction.

(f) Once neutralized, a participant should immediately cease all firing, movement, and communications. The participant should remain in place until the drill or exercise is terminated or the controller directs otherwise.

(g) Alarm station operators and/or participants may not engage in pre-drill or pre-exercise intelligence gathering. Participants who attempt to circumvent the rules will be removed from the drill or exercise.

(h) The controllers/evaluators observing and evaluating the activity should determine all neutralizations. Training equipment, such as MILES gear, can be used to assist in this determination.

(i) At the conclusion of each drill or exercise, participants should ensure that all radiological boundary controls are intact and that security doors involved in the drill or exercise are secure.

(j) The announcement "this is a drill" should be transmitted immediately preceding the first drill activity once the drill window is opened. This announcement should also be transmitted periodically throughout the drill and before any drill event after a long period of inactivity.

(k) To be successful during an exercise, the MAF should actually perform or simulate all actions necessary (including placing simulated explosives at doors, gates, and inside the target areas). If possible, the MAF should perform or simulate all actions necessary (including placing explosives) at the specific location where the equipment damage is intended to occur. If the actual equipment cannot be reached, the MAF may provide specific detail as to exactly where it intended to perform the action (or place the explosive and the amount to be placed).

(l) On-duty security force personnel should not assist or impede the participants in any fashion unless the circumstance pertains to a safety-related issue or to a real security situation or response.

(m) Participants should observe the deadly force rules of engagement as authorized by federal or state law and as defined by station policy. In addition, Section 8.2 of this RG provides further guidance regarding the proper use of force within the force continuum.

(n) At no time should drill or exercise participant(s) manipulate any plant component. It should be stressed that extreme caution is to be used near plant equipment. Backpacks, mock weaponry, and associated drill or exercise equipment should be kept clear of plant equipment.

(o) Controllers/evaluators ensure that drill or exercise participants do not voluntarily or accidentally touch plant equipment, controls, or instrumentation. If at any time

inadvertent contact is made with plant equipment, controls, or instrumentation, the controller/evaluator should immediately notify operations of the incident.

(p) The MAF and the insider must replicate, as closely as possible, the specific characteristics or requirements detailed in the DBT.

(q) Sufficient time should be allotted for the MAF to gain intelligence information from the insider.

(r) The MAF's familiarity with the plant should consist of only what the force has developed through information obtained from the insider or from public tours of the facility.

(s) The MAF should begin the exercise from the point where they would first have the potential for identification by or interaction with the licensee's security program measures.

(t) The MAF must replicate as closely as possible the adversary characteristics and capabilities of the design basis threat in 10 CFR 73.1(a)(1). This means that the MAF will adhere to the equipment and explosive weight limitations detailed in the DBT.

(u) When penetrating barriers (i.e., fences, doors, walls, etc.), the mock adversaries' entire task time (e.g., set time, time to achieve standoff distance, time to recover the standoff distance, and traverse the barrier) should be factored into the act. Proper care should be given to personal safety and protection when making entry. If portable blast protection is used, this equipment may be considered as part of the equipment carried in by the adversary team.

(v) Incapacitation criteria detailed in the DBT for weapons such as fragmentation devices, smoke grenades, and distraction devices will be followed during the exercise.

## 5.19 Critique and Evaluation

5.19.1 The licensee's protective strategy may be considered successful or effective if the adversary is detected, assessed, interdicted, and neutralized before successfully disabling all target set components within a single target set. The licensee may take credit for operator actions that protect a target set component or components from destruction or disablement only if that operator action meets all six criteria of a credible operator action as identified in RG 5.81. A licensee may not take credit for actions or equipment that are outside of the predetermined target set for the purpose of determining the effectiveness of the protective strategy or the capability of security personnel to carry out their assigned duties and responsibilities. Pursuant to 10 CFR 73.55(b)(10), the licensee shall enter identified drill or exercise programmatic deficiencies that adversely affect or decrease the protective strategy and physical protection program into the plant's corrective action program or training program and correct the identified deficiencies. Licensees should review the programmatic deficiencies for information that meets the protection requirements of 10 CFR 73.21 and 10 CFR 73.22.

5.19.2 Members of the armed response team should be evaluated on all aspects of response, including but not limited to timeliness, use of cover and concealment, tactical movement and firing techniques, assessment, and communication. Alarm station personnel should be evaluated for assessment, communication, coordination, LLEA notification/coordination, and other aspects of their duties under emergency situations. The response team leader should be evaluated for

performance in demonstrating command and control and making sound and timely decisions for direction of response personnel to interdict and neutralize the threat. Controllers should be evaluated for accurately assessing the individual and overall security force response to a contingency event.

5.19.3 The critique process is a crucial aspect of the drill and exercise program. This process involves evaluation of participant performance through specific critique criteria, participant self-assessment, and observations by controllers/evaluators. The critique criteria should support the evaluation standards and performance criteria identified for the scenario.

## 5.20 Critique and Evaluation Material

Consistent with Section VI, paragraph C.3.(g) of Appendix B to 10 CFR Part 73, each tactical response drill and FOF exercise shall include a documented post-exercise critique in which participants identify failures, deficiencies, or other findings in performance, plans, equipment and strategies.

Consistent with Section VI, paragraph C.3.(i) of Appendix B to 10 CFR Part 73, findings, deficiencies, and failures identified during tactical response drills and FOF exercises that adversely affect or decrease the effectiveness of the protective strategy and physical protection program shall be entered into the licensee's corrective action program to ensure that timely corrections are made to the appropriate program areas.

5.20.1 The following criteria should be considered when developing critique material for drill or exercise evaluation purposes:

(a) Each position and participant should be evaluated.

(b) The ability of each participant to satisfy the performance criteria associated with his or her position should be evaluated.

(c) Criteria not evaluated should be indicated on the critique. Evaluators should consider using "NE" (not evaluated) instead of "NA" (not applicable).

(d) The form should indicate whether the individual satisfied the performance criteria.

(e) Any issues identified as a result of the individual's performance should be documented. Issues should be correlated to their respective evaluation standards.

(f) Controller/evaluator performance evaluation comments should be solicited.

(g) The critique material should give participants the opportunity to critique their own actions and to provide feedback on the drill or exercise.

(h) The critique should include an overall assessment of the success of the drill or exercise in meeting the key program elements identified.

(i) Security equipment performance and security system performance should be evaluated as it relates to the licensee's protective strategy.

5.20.2 The lead controller should facilitate the critique conducted at the conclusion of a drill or exercise. All controllers/evaluators, adversaries, and participants should normally participate in the critique. Such participation gives the participants the opportunity to receive direct feedback from the controllers/evaluators. In addition, such participation allows participants to provide direct input to the critique process.

(a) The following format can be an effective means of performing critiques. The structure of the drill or exercise critique should ensure:

(1) All participants in the drill or exercise are in attendance.
(2) All aspects of the scenario, including goals and objectives, are thoroughly reviewed with the participants as a group.

(b) Each participant and corresponding controller/evaluator who had an engagement during the drill or has pertinent feedback will summarize his or her actions and should consider the following when providing an action summary:

(1) If a participant took action that resulted in his or her neutralization or the neutralization of an adversary or adversaries, then the participant and controller report should provide specific details of the actions taken. The participant/controller information should include engagement distance, number of adversaries engaged, number of rounds fired and number of seconds, the probability of neutralizing the adversary (high, medium, or low), and if the neutralization(s) resulted from MILES.
(2) If a participant took action that resulted in friendly fire, then the participant and controller report should provide specific details of the actions.
(3) A controller/evaluator whose participant had no interaction with the adversary force and had no effect on the outcome of the drill or exercise should participate (provide lessons learned feedback) to the extent of his or her direct observation of the exercise or drill.
(4) A controller/evaluator whose participant was actively involved in the outcome of the drill or exercise and who interdicted the adversaries should concur with the player's comments if applicable. If the controller/evaluator does not concur, he or she should provide details.
(5) At the conclusion of critiques, the lead controller should review the results of the drill or exercise and discuss the positive and negative aspects of the activities.
(6) During the review of the results, participants should be asked for suggestions for correcting issues and concerns, and these suggestions should be discussed.
(7) As a conclusion to the critique, the lead controller should review the goals, objectives, and key program elements of the drill or exercise and discuss how each was or was not met.
(8) Any participant or controller/evaluator that identifies a deficiency in the licensee's protective strategy (e.g., equipment, system or performance failure), regardless whether that participant took action in the drill or exercise, should provide specific details during the critique.

## 5.21 Drill or Exercise Documentation

Consistent with Section VI, paragraphs C.3.(g), (h), and (i), of Appendix B to 10 CFR Part 73, the results of a tactical response drill or FOF exercise shall be documented and entered into the licensee's corrective action program.

5.21.1 The following information shall be part of the drill or exercise documentation:

(a) controllers;

(b) MAF;

(c) scenario description;

(d) key elements and evaluation criteria in the drill;

(e) failures, deficiencies, or other findings in performance, plans, equipment, or strategies;

(f) actions taken on failures, deficiencies, or other findings;

(g) corrective actions (plant corrective action or training program) and the timeframe or priority given for resolution and identification of the individual responsible for resolution; and

(h) which participants took part in the exercise(s).

5.21.2 The following information should be part of the drill or exercise documentation, and is in addition to the information described in Section 5.21.1:

(a) date and time;

(b) drill/exercise number or other identifier;

(c) plant conditions, security system status, and weather conditions;

(d) program or process strengths identified; and

(e) whether the goals, objectives, and key program elements of the drill or exercise were or were not met.

5.21.3 The drill-planning package developed for the evolution should be attached to the report.

Consistent with Section VI, paragraph C.3.(j) of Appendix B to 10 CFR Part 73, the licensee must protect deficiencies identified during a drill or exercise consistent with the requirements of 10 CFR 73.21.

5.21.4 The training program normally addresses issues or deficiencies related to training and human performance.

Consistent with Section VI, paragraph C.3.(i), all program element deficiencies shall be entered in the licensee's corrective action program.

5.21.5 After the final critique results are prepared, the licensee can determine the disposition of each deficiency.

5.21.6 Identification of issues from the drills or exercises is only the first step in the corrective action process. Management should thoroughly review each deficient item identified and promptly develop and take corrective action. To ensure resolution of issues, the licensee should regularly review the corrective actions identified through the drill and exercise process and evaluate their effectiveness.

5.21.7 It is important that drill and exercise activities are properly documented to ensure appropriate levels of review and resolution of issues. Not all documents generated in the process of performing drills or exercises must be maintained as records.

Consistent with Section VI, paragraph C.3, and VI. H. of Appendix B to 10 CFR Part 73, and 10 CFR 73.55(q), the licensee shall retain the following documents:

(a) scenarios;

(b) participation records showing which security force personnel participated in tactical drills and FOF tactical exercises;

(c) completed critique material, including chronologies;

(d) final drill or exercise report; and

(e) resolution or proposed resolution of critique items.

Consistent with Section VI, paragraph C.3 (h), of Appendix B to 10 CFR Part 73, the licensee shall retain an attendance roster for all drill- and exercise-related training and briefings.

5.21.8 Documents that are to be retained as records should be legible and completed appropriately. They must be maintained consistent with NRC regulations, including 10 CFR 73.70, 73.21, and 73.22.

## 6. Duty Qualification and Requalification

Consistent with Section VI, paragraphs C and D of Appendix B to 10 CFR Part 73, the licensee must ensure that all individuals assigned duties and responsibilities in the Commission-approved physical security plan or safeguards contingency plan are, before assignment, trained and qualified to perform these duties and responsibilities consistent with the Commission-approved plans, licensee protective strategy, and implementing procedures.

Consistent with site procedures and 10 CFR 73.55(b)(10), the licensee shall ensure that the site corrective action program includes deficiencies identified in the training and qualification program.

### 6.1 Written Examination

Consistent with Section VI, paragraph D.1.(b)(1) of Appendix B to 10 CFR Part 73, armed and unarmed individuals assigned security duties and responsibilities shall demonstrate the required knowledge, skills and abilities by completing a written exam as identified in the Commission-approved Training and Qualification plan.

The written exams shall require a minimum score of 80 percent to demonstrate an acceptable understanding of assigned duties and responsibilities, to include the recognition of potential tampering involving both safety and security equipment and systems.

## 6.2 Hands-On Performance Demonstration

Consistent with 10 CFR 73.55(b)(5) and Section VI, paragraph D.1.(b)(2) of Appendix B to 10 CFR Part 73, armed and unarmed individuals assigned security duties and responsibilities shall demonstrate the ability to perform their assigned duties and responsibilities through a practical hands-on performance demonstration of required tasks. The hands-on performance demonstration must ensure that theory and associated learning objectives for each required task are considered and that each individual demonstrates the knowledge, skills, and abilities required to effectively perform the task.

6.2.1 With the exception of elements or critical tasks categorized as M (Must Perform), the demonstration should be performed annually and is not subject to change using the SAT process.

## 6.3 Annual Written Examination

Consistent with Section VI, paragraph D.1.(b)(3) of Appendix B to 10 CFR Part 73, the licensee shall administer an annual examination for armed individuals to verify that they have the required knowledge, skills, and abilities to carry out assigned duties and responsibilities as an armed member of the security organization as identified in the Commission-approved Training and Qualification plan. Personnel must achieve a minimum score of 80 percent to demonstrate an acceptable understanding of assigned duties and responsibilities.

6.3.1 This examination should, at a minimum, include the following elements:

(a) role of security personnel in supporting safe operations of the facility;

(b) the use of deadly force, including the principles involved in the application, escalation, and de-escalation of force;

(c) knowledge of 10 CFR Part 73 requirements for the protection of safeguards information;

(d) the authority of private security personnel;

(e) knowledge of who has power of arrest and authority to detain;

(f) knowledge of authority to search individuals and seize property;

(g) knowledge of offsite law enforcement response capabilities and criteria for response;

(h) knowledge of tactics and force that an adversary group might use to achieve its objectives; and

(i) knowledge of response force deployment, tactical movement withdrawal, and use of support fire.

## 6.4 Requalification

Section VI, paragraph D.2.(a), of Appendix B to 10 CFR Part 73 requires armed and unarmed individuals to requalify at least annually, consistent with the Commission-approved Training and Qualification plan.

6.4.1 The periodicity of task requalification may be determined by applying an analysis of the training program similar to the SAT process. Personnel may demonstrate and be evaluated on knowledge, skills, and abilities during routine performance as part of normal duties or by requalification in a manner similar to the initial qualification, with the exception of M (Must Perform) elements. The individual should actually perform the indicated task under the supervision of a qualified individual. This element or critical task must be performed annually and is not subject to change using the SAT process.

6.4.2 If unable to achieve the requisite requalification, the individual must not return to security duties until he or she has successfully requalified. Requalification completion must be documented in the individual's training record.

6.4.3 The requalification of each individual to perform assigned duties and responsibilities must be documented by a qualified training instructor and attested to by a security supervisor.

Consistent with Section VI, paragraphs A.7 and D.1.(a) of Appendix B to 10 CFR Part 73, annual requalification requirements must be scheduled at a nominal 12-month periodicity (also referred to as the baseline qualification date). The actual scheduled date (baseline) for the requalification of an annual requirement can be changed (re-baselined) by conducting training earlier than the originally scheduled (baseline) date. The next scheduled date for requalification, from that point forward, must be nominally 12 months from the new (re-baselined) qualification date. Licensees must ensure that, when applying this short-cycle provision to the training schedule for their annual requirements, their schedule for weapons range activities still meets the nominal 4-month periodicity identified in Section VI, paragraph E.1.(f) of Appendix B to 10 CFR Part 73.

# 7. Training of Security Instructors, Firearm Instructors, and Armorers

## 7.1 Security Training Instructors

Consistent with 10 CFR 73.55(c)(3), licensees are required to have an NRC approved training and qualification plan. This plan should include a section dealing with the training and qualification of security instructors. There is no regulatory requirement for the certification of general security training instructors. There is a regulatory requirement for the certification of firearms instructors and armorers.

7.1.1 The program should include guidance on instructor development and qualification. Security instructors who implement the security-training program should be included in the station's existing instructor training program.

7.1.2 When using contract instructors or trainers, the licensee should either include those personnel in the station's instructor training program or establish comparable criteria to be met by the vendor's program.

## 7.2 Initial Instructor Qualification

7.2.1 Initial security training instructor qualifications may include but are not limited to the following skills:

(a) Presentation skills such as vocal inflection, voice analysis, gestures, eye contact, verbal communication, and nonverbal communication.

(b) Instructional skills such as introducing a lesson, presenting content, monitoring performance, providing feedback, summarizing a lesson, applying adult learning theory, conducting practical demonstrations, maintaining and using individual trainee records and training program records, designing training programs, planning and developing lessons, selecting, developing, and modifying training materials, presenting laboratory instruction, managing individualized instruction, conducting walkthroughs and plant tours, conducting simulator training, and supervising OJT.

(c) Facilitation skills such as establishing a positive climate, setting up a classroom, starting a course, maximizing learner confidence and self-esteem, increasing participation and involvement, managing classroom time, motivating learners, addressing individual needs, managing small group activities, promoting transfer of skills, managing group dynamics, facilitating discussions, applying questioning techniques, handling resistance, and handling difficult learners.

## 7.3 Continuing Training for Security Instructors

7.3.1.1 Continuing training for security instructors is recommended and should be conducted consistent with the station's existing instructor training program.

7.3.1.2 Training needs analysis, feedback on training performance, and other inputs as defined in the following sections should be the basis of continuing training programs. Qualified instructors should review the initial instructor training elements to enhance their knowledge, skill, and ability.

## 7.4 Subject Matter Experts

Subject matter experts may or may not be qualified security instructors. Subject matter experts should be fully proficient in the tasks they are assigned to instruct and evaluate. At a minimum, they should have the following attributes:

(a) field knowledge, skill, and ability;

(b) effective interpersonal communication skills;

(c) effective observation skills;

(d) acceptance of self-development; and

(e) professionalism.

## 7.5 Firearms Instructor

Consistent with Section VI, paragraph E.1.(b)(2)-(3)of Appendix B to 10 CFR Part 73, firearms instructors must be trained and certified by a state or nationally recognized entity for each weapon type (handgun, rifle, shotgun, remote operated weapons, and enhanced weapons) for which the individual will be providing instruction. Firearms instructors must follow the recertification criteria set by the certifying entity, but recertification must occur at least every 3 years.

7.5.1. A certified firearms instructor must train and qualify members of the security organization for the use and maintenance of each assigned weapon to include, but not be limited to: marksmanship, assembly, disassembly, cleaning, storage, handling, clearing, loading, unloading, and reloading.

7.5.2. Examples of a recognized entity may be the National Rifle Association's law enforcement firearms instructor courses and those offered by a federal, state, or state-certified LLEA.

7.5.3. Instructors who use a firearms training simulator (FATS) to satisfy any weapons training requirement in Section VI, paragraph E.1.(c)–(f) of Appendix B to 10 CFR Part 73 should complete training from the FATS vendor or other appropriate source, so they are fully knowledgeable and proficient with the system's relevant capabilities.

7.5.3.1. FATS instructor training should include subjects, such as:

(a) FATS operation and system capabilities (e.g., how to operate all modes of the FATS);
(b) Identifying and troubleshooting FATS problems;
(c) Conducting user-level FATS maintenance, including removing failed components for repair or replacement and installing replacement parts;
(d) Foundations of simulated event training;
(e) Environmental simulation, including video authoring;
(f) Human factors and adversary and security force behaviors in use of force encounters;
(g) Identifying and developing scenario objectives and descriptions; and
(h) Scenario development, including programming target movement and actions.

7.5.3.2. FATS instructors should follow the recertification criteria set by the vendor or other appropriate source, or not later than every 3 years

## 7.6 Armorer

Consistent with Section VI, paragraph G.3.(a)(6) of Appendix B to 10 CFR Part 73, the licensee must have a firearms maintenance and accountability program consistent with a Commission approved training and qualification plan that includes a process for armorer certification. If the licensee does not employ a certified armorer, it may send the weapons to a certified offsite armorer for required maintenance and certification of operability.

# 8. Weapons Training

## 8.1 General Firearms Training

Consistent with Section VI, paragraph E of Appendix B to 10 CFR Part 73, armed security personnel must complete firearms training to demonstrate basic skills and the safe handling of assigned firearms. The objective is to conduct firearms training drills and courses of fire to teach the necessary skills and abilities to armed security personnel.

Consistent with Section VI, paragraph E.1.(d) of Appendix B to 10 CFR Part 73, the Commission-approved Training and Qualification plan must include, but is not limited to, the following areas:

(a) mechanical assembly, disassembly, weapons capabilities, and fundamentals of marksmanship;

(b) weapons cleaning and storage;

(c) tactical weapons training, day and night;

(d) safe weapons handling;

(e) clearing, loading, unloading, and reloading;

(f) firing under stress;

(g) zeroing duty weapon(s) and weapons sighting adjustments;

(h) target identification and engagement;

(i) weapons malfunctions;

(j) cover and concealment; and

(k) weapons familiarization.

Consistent with the "Staff Position and Path Forward for Firearms Training Simulators" (Ref. 17), staff considers the use of a FATS to be an acceptable method for licensees to use to satisfy the firearms and weapons training requirements in Section VI, paragraph E of Appendix B to 10 CFR Part 73. As indicated by Table 1, the degree to which a licensee may meet any specific requirement using FATS should be based on the extent to which the licensee can demonstrate that its FATS provides a level of training that is at least equivalent to the training an armed member of the security organization would receive if the licensee conducted the training using the actual firearm(s) or weapon(s) issued to on-shift security personnel.

**Table 1. Comparison of the Staff Positions on FATS and Firearms**

| Requirement | Non-Firearms-Based FATS | Firearms-Based FATS | Firearms |
|---|---|---|---|
| Familiarization | Acceptable (to the extent demonstrated) | Acceptable (to the extent demonstrated) | Acceptable |
| Other firearms & weapons training | Acceptable (to the extent demonstrated) | Acceptable (to the extent demonstrated) | Acceptable |
| Use of force | Acceptable (to the extent demonstrated) | Acceptable (to the extent demonstrated) | Acceptable |
| Range activity | Not acceptable | Acceptable (once per year) | Acceptable |
| Qualification | Not acceptable | Not acceptable | Acceptable |

## 8.2 Mechanical Assembly, Disassembly, Weapons Capabilities, and Fundamentals of Marksmanship

Consistent with Section VI, paragraph E.1.(d)(1) of Appendix B to 10 CFR Part 73 requires licensees' Commission-approved security training and qualification plans to include mechanical assembly and disassembly of weapons, weapons capabilities, and the fundamentals of marksmanship.

8.2.1 Training on weapons capabilities should include the maximum effective range and the penetration capabilities of all licensee-issued firearms and ammunition. Armed security personnel must participate in training on the fundamentals of marksmanship (grip, stance or position, trigger control, sight alignment, sight picture, breathing, follow through) to emphasize the development of shooting skills.

8.2.2 For a licensee using FATS, the licensee should maintain some portion of its non-FATS lesson plan(s) to fully satisfy the mechanical assembly and disassembly training requirements in Section VI, paragraph E.1.(d)(1) of Appendix B to 10 CFR Part 73. For example, some non-firearms-based FATS weapons are one-piece, molded devices with no functioning components other than triggers that control the FATS lasers. Such weapons would not be capable of being disassembled or assembled. Additionally, firearms-based FATS weapons may not exactly replicate the components that are manipulated during the field disassembly and assembly of the firearm(s) the licensee uses to implement its protective strategy. In order to meet the regulatory requirement for assembly and disassembly, FATS weapons' mechanical components and functions should replicate the on-duty weapon(s) that security officers will be required to utilize in the performance of their duties as a member of the armed security force.

## 8.3 Weapons Cleaning and Storage

Consistent with Section VI, paragraph G.3 of Appendix B to 10 CFR Part 73, the licensee's firearms maintenance program must include training in the care, cleaning, and storage of firearms. Section 13 of this RG discusses firearms maintenance.

## 8.4 Day and Night Combat Firing

Consistent with Section VI, paragraph E.1.(d)(3) of Appendix B to 10 CFR Part 73 requires licensees to include day and night combat firing training in their Commission-approved training and qualification plans.

8.4.1 Armed officers should be trained in weapons practices used in combat situations (e.g., firing on the move, double tapping). The goal of this type of weapons training is to teach weaponry techniques to achieve a level of conditioning that provides the officer with enhanced firearms shooting skills.

8.4.2 Training for tactical firing should focus on the armed officer's ability to identify the opportunities that exist in the contingency environment and to take decisive and effective advantage of them.

8.4.3 Additional considerations for training at night may include, but are not limited to, use of an appropriate flashlight, use of night devices and/or thermal devices (worn or weapons mounted), limited illumination, and additional range safety measures.

8.4.4 Night training may be simulated through a variety of techniques, such as, but not limited to, the use of indoor firing ranges or the use of tinted eyewear. This training may also be conducted as dry-fire training or as FOF training with the use of MILES, simulated weapons systems, paintball systems, or other techniques.

8.4.5 This training may need to be adjusted to be consistent with applicable local, state, and federal laws or agreements regarding the use of firearms. Licensees may consider the following in the development of the tactical weapons training:

(a) Assessment;

(1) (before engagement) situational awareness and surveillance of the operator's horizon and identification of cover and concealment, and
(2) (after engagement) adversary status, communications, weapons condition, and ammunition management.

(b) Identification;

(1) identification of friend or foe and the decision to engage,
(2) threat management (from immediate to impending threats), and
(3) situational training (threat amidst non threat-related targets).

(c) Target acquisition;

(1) from the ready, holster, or carry (safety circle),
(2) rapid acquisition techniques (initial acquisition and adjusted acquisition),
(3) single threat or a single threat amidst non threat-related targets,
(4) multiple threat or a multiple threat amidst non threat-related targets, and
(5) threat management (from immediate to impending threats, sequential acquisition).

(d) Engagement;

(1) use of cover and concealment,
(2) techniques of effective rapid fire (all weapons),
(3) recovery from stoppages (immediate action/feedway clearance),
(4) weapons transitions,
(5) shooting while moving (advancing, evading, and lateral movement),
(6) stationary and moving threat,
(7) threat management (engagement of immediate to impending threat, sequential fire),
(8) multiple threat (sequential fire) or multiple threat amidst non threat-related targets,
(9) recovery from engagement (back to assessment) and continuation of mission, and
(10) close-quarter firing.

8.4.6 A FATS is typically designed to simulate environments in which members of a licensee's security organization can learn and practice realistic combat skills without the use of live ammunition. Both firearms-based and non-firearms-based FATS can provide realistic training on identifying and engaging targets and dealing with various factors associated with a combat environment (e.g., reduced visibility, adversary behavior, split-second decision making).

## 8.5 Safe Weapons Handling

Consistent with Section VI, paragraph E.1.(b)(1) of Appendix B to 10 CFR Part 73, training in safe weapons handling skills shall be developed for each type of weapon assigned to the licensee's armed security personnel.

8.5.1 This training should address, at a minimum, the following firearms safety rules:

(a) Treat all firearms as loaded at all times.

(b) Always keep the firearm's muzzle pointed in the safest direction and never intentionally cross anything you are not prepared to shoot.

(c) Always keep your trigger finger straight on the firearm's frame unless you are prepared to shoot.

(d) Never place the selector level in the fire position unless you are ready to fire.

(e) Verify the position of the firearm's selector lever if your weapon is bumped.

(f) Never handle firearms if you are taking any prescription or nonprescription drugs that could affect your ability to safely handle or fire a firearm.

(g) Always load and unload firearms in the designated loading and unloading area.

(h) Never handle any firearm by the barrel.

8.5.2 The firearms training program should include, but is not limited to, the following range safety guidelines:

(a) Firearms range safety rules should be followed at all times.

(b) Firearms range safety guidelines should incorporate industry operating experience and other related events.

(c) Firearms range safety guidelines should also address armed officer safety.

(d) Range safety rules should be reviewed before conducting any range activities.

8.5.3 Licensees should continuously foster the safe handling of firearms, including during pre-range activities in classrooms, at designated ranges, and in areas where personnel perform their duties. Firearms training should include how to safety carry, transport, and store assigned firearms and ammunition.

8.5.4 Licensees that use FATS, laser engagement equipment (e.g., MILES, Saab), or other non-firearms systems in their firearms or weapons training programs should stress the importance of treating these weapons as actual firearms or weapons and reinforce appropriate handling behaviors. Otherwise, improper weapons handling behaviors learned with firearms or weapons training systems could have significant adverse consequences when personnel handle actual firearms or weapons. For example, a licensee that permits personnel to clear only FATS weapons in the dark

could create a culture that increases the potential for negligent discharges if, without proper training, personnel attempt that action with actual firearms loaded with live ammunition.

## 8.6 Clearing, Loading, Unloading, and Reloading

Consistent with Section VI, paragraph E.1.(b)(1) of Appendix B to 10 CFR Part 73, licensees must train their armed personnel on proper clearing, loading, unloading, and (tactical and speed) reloading procedures for each assigned firearm.

8.6.1 Licensees should ensure their training includes instruction and repetitive practice of clearing, loading, unloading, and reloading skills.

8.6.2 Training for the retention of unused ammunition during tactical reloads should be considered.

8.6.3 Licensees that use FATS must ensure they maintain the capability to satisfy the clearing, loading, unloading, and reloading training requirement. For example, due to some FATS configurations, it will likely not be possible to demonstrate how to load ammunition into a FATS magazine or how to properly clear a firearm using only a FATS magazine. Both loading and clearing a firearm are required training elements. In cases where the FATS weapons' magazines are incapable of demonstrating loading and unloading, licensees should use standard-issue magazines and live, Simunition®, or inert (i.e., dummy) ammunition to ensure its security personnel are familiar with the complete firearms loading and unloading processes.

## 8.7 Firing Under Stress

Consistent with Section VI, paragraph E.1.(d)(6) of Appendix B to 10 CFR Part 73, firearms training programs shall include training exercises that induce physical and mental stress.

8.7.1 The following are examples of elements that can be introduced into the weapons training environment to induce stress:

(a) time limitations (exercise completion times, reduced target exposure times);

(b) physical activity (running, climbing stairs);

(c) loud audible noise (simulated small arms fire, explosions);

(d) weapon stoppages (immediate action, feedway clearance, weapons transitions);

(e) limited lighting conditions at night;

(f) simulated equipment failures (primary sighting system inoperable, magazine fails to feed);

(g) simulated incapacitation (incapacitation exercises, non-dominant (support) hand firing);

(h) simulated use of chemical agents; and

(i) donning of a gas mask.

8.7.2 FATS can be an acceptable method for producing some of the stressors listed above, particularly mental stressors. Licensees should consider the numerous stressor limitations a FATS has and use another method(s) to satisfy any unfulfilled requirements. For example, a FATS range is typically confined to a room or other small area, which is conducive to little, if any, physical exertion like running or climbing stairs. Additionally, a FATS does not accurately replicate the recoil or other important tactical, physical, or psychological stressors that shooters experience when firing live ammunition, such as distractions from contact with fired casings, loud noise, and concussive effects.

## 8.8 Zeroing Duty Weapons and Weapons Sighting Adjustments

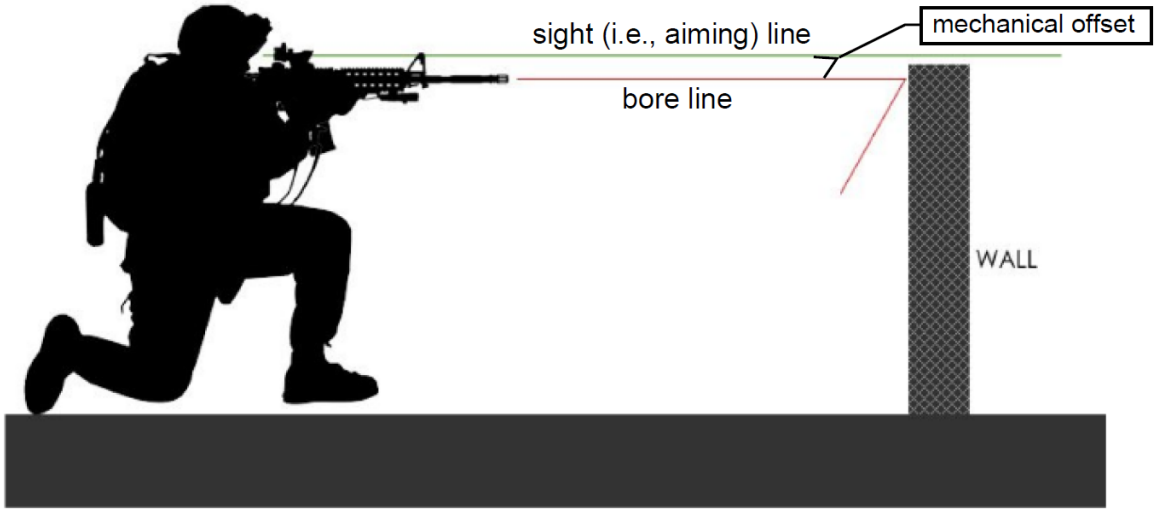
Consistent with Section VI, paragraph E.1.(d)(7) of Appendix B to 10 CFR Part 73, licensees' Commission-approved training and qualification plans shall include training on zeroing duty weapons and adjusting weapon sighting systems for all duty weapons.

8.8.1 Sighting systems should be inspected daily to ensure that they are operable (e.g., front/rear sights not bent or broken, glass in-scope-type systems not cracked, batteries replaced if needed, night sights illuminate, sighting systems mounted properly and not loose) using appropriate safety rules for weapons handling.

8.8.2 When licensees employ firearms or weapons with optical or mechanical sights that require tools (e.g., 4- or 5-pin front sight tool, screwdriver) to manipulate, licensees should ensure appropriate members of the security organization are trained and proficient with those tools and the associated sight manipulations.

8.8.3 Licensee training for personnel should include the concept of mechanical offset and why it is important. Mechanical offset is particularly important when personnel are trained to keep the muzzles of their rifles behind firing ports or obstacles, where it's possible to simultaneously have a clear sight picture and a bore line below the bottom of a port or the top of an obstacle (see Figure 1). When shooting through a firing port or from behind an obstacle, understanding what mechanical offset is and why it is important can make the difference between taking an effective shot and shooting or damaging the firing position or the obstacle being used for cover, which could lead to spalling, ricochets, and injury to the shooter.

**Figure 1. Illustration of Mechanical Offset**




8.8.4 If using FATS weapons to meet the weapons sighting adjustment requirement, licensees should ensure that their FATS weapons use the same sighting systems as the ones mounted on the firearms and weapons they issue to on-shift security personnel. Doing so should eliminate any disparities when training personnel how to manipulate sights and give licensees the flexibility to include such training into their FATS curriculum, if desired.

8.8.5 Licensees should not use FATS to zero duty weapons. Although a FATS can usually simulate the environmental effects on a bullet's trajectory, FATS weapons do not have the same precision as actual firearms. For example, the distance between a shooter and the FATS screen is typically very short (e.g., 10-30 feet) and a FATS automatically eliminates the mechanical offset that would be present when firing a rifle with live ammunition.

## 8.9 Target Identification and Engagement

Consistent with Section VI, paragraph C.3.(k)(3) and E.1.(d)(8) of Appendix B to 10 CFR Part 73, target identification and engagement training shall be conducted to reflect the environment and conditions the security force would encounter when exercising the licensee's protective strategy (e.g., while moving, in the open, from cover).

8.9.1 Training in target identification and engagement should be designed to enhance the armed security officer's ability to identify adversarial threats. Target identification and engagement training should focus on the development of the following:

(a) assessment (situational awareness and surveillance of the operator's horizon);

(b) identification (identification of friend or foe and the decision to engage);

(c) target acquisition (from the ready, holster, or carry (safety circle)); and

(d) engagement (adequate for neutralization and recovery and mission continuation).

8.9.2 Licensees should train their personnel using targets that replicate real-world attributes, particularly size. For example, licensees using a standard full-profile silhouette target (e.g., National Rifle Association B-27 target) to simulate an adversary running perpendicular to a firing position (e.g., along a fence line) should reduce the width of the target to reflect the fact that an adversary would present only a side profile to the firing position. An acceptable method for reducing the size of a B-27 target is to vertically fold the sides of the target to the rear, so the target's torso is no more than 12 inches wide.

8.9.3 A licensee may use a FATS to satisfy the target identification and engagement training requirement, when its FATS is designed to simulate the variety of potential real-world targets its personnel may encounter. Both firearms-based and non-firearms-based FATS may be able to provide realistic training on identifying and engaging appropriate targets in dynamic threat environments (e.g., reduced visibility, unpredictable adversary appearances and behavior, split-second decision making).

## 8.10 Weapons Malfunctions

Consistent with Section VI, paragraph E.1.(d)(9) of Appendix B to 10 CFR Part 73, licensees' Commission-approved training and qualification plans must include training on weapons malfunctions.

8.10.1 Training for correcting stoppages should include weapons-clearing techniques such as immediate action, as well as weapons feedway clearances.

8.10.2 The prescribed method for causing stoppages during training may include the use of inert training ammunition commonly referred to as "dummy rounds" or simulated weapons systems.

8.10.3 A licensee should use a method other than FATS (e.g., standard-issue magazines and live, Simunition®, or inert (i.e., dummy) ammunition) to satisfy the weapons malfunction training requirement and ensure its personnel are familiar with how to identify and properly respond to stoppages. Examples include, but are not limited to:

8.10.3.1 Although FATS can sometimes simulate a basic stoppage like one caused by an empty magazine, a FATS is incapable of effectively simulating failures to fire or complex stoppages like a double-feed, failure to eject (including a 'stovepipe'), and case-over-the-bolt (e.g., a case stuck between the bolt and the charging handle of an Armalite rifle).

8.10.3.2 Given that FATS does not use physical items as ammunition, it is easy to understand why FATS cannot simulate complex stoppages. It is not as obvious why FATS cannot simulate a failure to fire. The reason is FATS shots sound very soft compared to live ammunition. An armed member can easily recognize when an actual firearm loaded with live ammunition fails to report a loud 'bang' after pulling the trigger. With FATS, users are unable to readily distinguish between the audible report of a simulated shot and the report resulting from a simulated failure to fire.

8.10.4 Licensees should instruct their personnel how to identify indicators of malfunctions and stoppages, and then take the appropriate action(s). Applying inappropriate corrective actions can aggravate a non-firing condition and turn stoppages into malfunctions, potentially rendering a firearm inoperable during a contingency event.

8.10.4.1 Licensees should ensure their training for armed responders includes applying immediate actions when a semiautomatic rifle fails to fire AND the bolt is fully forward OR the ejection port cover is closed. Appropriate actions should include Tap, Rack, and Reassess: 1) Tap the magazine to ensure it is seated; 2) Rack the bolt vigorously to the rear, letting the buffer spring drive the bolt home; and 3) Reassess the target to see if there is still a need to fire.

8.10.4.2 For an out-of-battery stoppage, the bolt of a semiautomatic rifle will not be fully forward or seated to enable the firing pin to strike a primer (i.e., the ejection port cover will be open). Corrective actions should include using the forward assist. If no forward assist is available, licensees should train their personnel to Tap, Rack, and Reassess (see paragraph 8.10.4.1 for detailed steps).

8.10.4.3 For failures to eject (including 'stovepipes'), licensees should ensure their training for armed responders includes positioning the ejection port of rifles down while applying the immediate actions of Tap, Rack, and Reassess (see paragraph 8.10.4.1 for detailed steps). Tilting the ejection port down will enable gravity to assist with the feedway clearance.

8.10.4.4 For double-feeds, licensees should ensure their training for armed responders includes: 1) retracting and locking the rifle's bolt to the rear to take pressure off the rounds; 2) forcefully removing the magazine; and 3) racking the charging handle 2-3 times. Licensees should ensure their training includes additional actions if the remedial actions listed above do not clear the obstruction. One measure could be for personnel to use their fingers to attempt to clear the obstruction. Licensees' training should instruct personnel that once the obstruction is clear, to insert a different magazine (if one is available), release the bolt (perhaps even rack it several times), and reassess the target to see if there is still a need to fire.

8.10.4.5 For case-over-the-bolt conditions (aka bolt overrides), licensees should ensure their training for armed responders includes: 1) attempting to place the rifle on safe; 2) removing the magazine; 3) placing the butt of the rifle on the ground or other surface; 4) pulling and holding the charging handle to the rear; 5) rotating the rifle so that the ejection port is facing the armed member; 6) holding the bolt face back with a sturdy, slender object while simultaneously pushing forward on the charging handle to clear the obstruction; 7) checking the chamber area to ensure it is clear; 8) reloading the rifle; and 9) reassessing the target to see if there is still a need to fire.

## 8.11 Cover and Concealment

Consistent with Section VI, paragraphs C.2.(c)(4) and E.1.(d)(10) of Appendix B for 10 CFR Part 73, armed personnel must be trained to recognize and effectively use cover and concealment.

8.11.1 Training should include methods of approaching, moving, and shooting around various forms of cover and concealment. Cover is an object offering protection from weapons fire (i.e., concrete walls, steel beams, large trees, heavy metal machine parts, large pipes, etc.).

8.11.2 Cover can deteriorate rapidly under weapons fire and should be considered consumable. Concealment is provided by vegetation, terrain features, terrain relief and drainage, manmade structures, weather conditions (such as fog and precipitation), and darkness. Proper evaluation of

these aspects differentiates concealment from cover. Concealment is effective only when individuals do not disclose their location by fire or maneuver.

8.11.3 Cover and concealment training with FATS will vary depending on the system's capabilities. To the extent practical, licensees should use FATS to simulate environments where targets can be engaged through concealment, and cover deteriorates as damage is incurred. Licensees should ensure FATS scenarios require personnel to discriminate between cover and concealment when engaging targets.

8.11.3.1 Although a FATS cannot interact with physical objects, licensees should consider using barricades during FATS courses of fire that simulate shooting positions similar to the ones personnel would employ during a contingency event.

8.11.3.2 Licensees should fully utilize FATS capabilities to create realistic scenario environments. One method licensees can use is to upload photographs or videos of actual plant areas, and then add environmental layers to control lines of sight, cover and concealment (e.g., fighting positions, vehicles, trees, foliage), destructible elements in the environment (e.g., glass), and other elements that improve realism.

8.11.3.3 Some FATS can create environments with virtual objects that personnel should avoid damaging or destroying (e.g., emergency switchgear, pumps and piping, and other safety-related equipment; responding licensee security personnel; etc.). Licensees should utilize this capability to the extent practical.

## 8.12 Weapons Familiarization

Section VI, paragraph E.1.(d)(11) of Appendix B to 10 CFR Part 73, requires that the licensee's training and qualification plan include weapon familiarization. The objective of firearms familiarization training is to improve the skill and ability of armed security personnel when handling and using weapons.

8.12.1 Weapon familiarization, at a minimum, should include the following:

(a) firearms handling drills;

(b) clearing, loading, unloading, and reloading procedures for each firearm;

(c) training for engaging potential targets when obstacles such as smoke, fencing, doors, and walls are encountered during a contingency event;

(d) drills that demonstrate the ability to transition from one firearm type to another (applicable only to licensees that issue multiple firearms to their personnel);

(e) drills that demonstrate the ability to recover from simulated weapon stoppages (e.g., dummy rounds);

(f) cover and concealment drills;

(g) nonlethal weapons training and drills; and

(h) cleaning and maintenance procedures for each firearm.

8.12.2 The licensee should also consider these topics:

(a) weapons nomenclature (safety features, certain design characteristics such as gas operating system);

(b) weapons functioning (cycle of operation, the action of all working parts);

(c) dry-fire range familiarization (stressing range safety procedures);

(d) live-fire range familiarization (e.g., familiarization with the report and recoil of the weapon);

(e) firing positions (e.g., prone, kneeling, sitting); and

(f) timed-fire exercises (e.g., from ready, carry, or holster using firing positions such as prone or kneeling).

8.12.3 Advanced training for weapons familiarization should be considered for all assigned weapons systems and should include the following advanced skills:

(a) rapid fire techniques;

(b) non-dominant (support) hand fire;

(c) shooting while moving (laterally, advancing, and evading);

(d) shooting from elevated positions; and

(e) firing with field gas mask donned.

8.12.4 A licensee may use a FATS as the method for satisfying many of the weapon familiarization requirements. For example, a licensee using firearms-based FATS should be able to fully satisfy the firearms handling drills requirement, because the modifications necessary to make the firearms function safely with the FATS do not change the firearms' handling characteristics or operations. Some FATS can simulate a range of weapons (including less-lethal weapons like chemical irritants and TASERs®) and limited-visibility environments, including reduced- and no-light situations, obscurants (e.g., smoke), and weather conditions (e.g., fog, heavy rain, lightning). Additionally, some FATS may permit licensees to use their normal firearms sighting systems and other equipment (e.g., flashlights that have been modified to function with the FATS). Finally, licensees may possess FATS that can use uploaded photographs or video of actual plant areas to create three-dimensional environments for scenarios, permitting licensee to add layers to control lines of sight, cover and concealment (e.g., fighting positions, vehicles, trees, foliage), destructible elements in the environment (e.g., glass), and other elements that improve realism.

8.12.4.1 A licensee should evaluate whether its needs to maintain some portion of its non-FATS lesson plan(s) to fully satisfy the weapon familiarization requirements. For example, it may not be possible to demonstrate how to load ammunition into a FATS magazine or how to properly clear a firearm using only a FATS magazine, both of which are elements of the clearing, loading, unloading, and reloading familiarization requirement. A licensee may need to use another method (e.g., standard-issue magazines and live, Simunition®, or inert (i.e., dummy) ammunition) to ensure its security personnel are

familiar with the complete firearms loading and unloading process and how to identify and properly respond to stoppages.

## 8.13 Use of Force

Consistent with 10 CFR 73.55(k)(3), a licensee shall train each armed member of the security organization to prevent or impede attempted acts of radiological sabotage by using force sufficient to counter the force directed at that person, including the use of deadly force when the armed member of the security organization has a reasonable belief that the use of deadly force is necessary in self-defense or in the defense of others, or any other circumstances as authorized by applicable state or federal law.

Consistent with Section VI, paragraph E.1.(e) of Appendix B to 10 CFR Part 73, each licensee shall ensure that all personnel of the security organization are instructed on the proper use of deadly force as authorized by applicable state law. Each member of the security organization, commensurate with his or her assigned duties, should also thoroughly understand the proper use of the force continuum.

Use-of-force training should be designed to help licensee security personnel learn how to identify and react appropriately to situations along the use-of-force continuum, from security officer presence to deadly force. Firearms and weapons characteristics are less important for use-of-force training than for other firearms- and weapons-related training, because use-of-force training focuses on the mental skills necessary to recognize verbal cues, facial expressions, body language, and other indicators of potential threats (e.g., presence of a firearm or edged weapon) and then respond with the appropriate level of force.

8.13.1 Information Notice No. 89-05, "Use of Deadly Force by Guards Protecting Nuclear Power Reactors Against Radiological Sabotage" provides some situations and circumstances that could justify the use of deadly force in protecting power reactors. Examples of situations and circumstances that could justify the use of deadly force are as follows:

(a) Defending Against Violent Armed Assault. Use of deadly force could be justified in defending a power reactor against a determined violent armed assault.

(b) Defending Against Armed Attack by Stealth. Use of deadly force could be justified for defenders intercepting armed intruders who have penetrated the protected area and are attempting to break into an area containing vital equipment, ignoring defenders' challenges and warnings to stop.

(c) Defending Against Attackers Employing Explosives and/or Incendiaries. Use of deadly force could be justified for defenders intercepting intruders placing explosives or incendiary devices near vital equipment if the intruders ignore defenders' warnings to stop.

(d) Defending Against Perceived Armed Attack. Use of deadly force could be justified for defenders intercepting heavily armed intruders who enter the protected area ignoring challenges and warnings.

8.13.2 Under these and similar conditions, security personnel do not have to abandon cover and concealment or their defensive positions or wait for the adversaries to fire the first shot. Such actions may expose the security personnel to casualties and jeopardize their ability to defeat or contain the attacking forces.

8.13.3 Licensees may use firearms-based or non-firearms-based FATS to satisfy the use-of-force training requirement, because both systems are designed to provide realistic training on the use of force, including deadly force.

## 8.14 Range Periodicity

Consistent with Section VI, paragraph E.1.(f) of Appendix B to 10 CFR Part 73, personnel of the security organization must participate in range activities on a nominal 4-month periodicity. The activities may be conducted up to 5 weeks before or 5 weeks after the scheduled date, but the next scheduled date must be 4 months from the original scheduled date. This provision is intended to account for unexpected site-specific circumstances that may delay an individual's ability to participate in range activities on a specified date.

The NRC has not previously defined the term "range activities." Title 10 of the *United States Code* (U.S.C.), Section 101(e)(2)(B), defines range activities, in part, as "the training of members of the armed forces in the use and handling of military munitions, other ordnance, and weapons systems." Applying this definition to the NRC's regulatory framework, it is reasonable to conclude that the term "range activities" means training that prepares licensee security personnel to use and handle assigned firearms, ammunition, and associated equipment (e.g., weapons sighting systems, nonlethal weapons, obscurants, flares) required to implement a licensee's protective strategy.

8.14.1 Consistent with the "Staff Position and Path Forward for Firearms Training Simulators" (*See* Ref. 14), licensees should consider a firearms-based FATS as meeting the definition of a range activity, since this system is designed to train personnel on the use and handling of actual, assigned firearms and other duty equipment.

Similarly, the NRC has not defined the term "range." Title 10 of the U.S.C., Section 101(e)(1)(A), defines a range as "a designated land or water area that is set aside, managed, and used for range activities of the Department of Defense. Such term includes the following: Firing lines and positions, maneuver areas, firing lanes, test pads, detonation pads, impact areas, electronic scoring sites, buffer zones with restricted access, and exclusionary areas."

8.14.2 Consistent with the "Staff Position and Path Forward for Firearms Training Simulators" (*See* Ref. 14), licensees should consider the room or area that houses a firearms-based FATS to be a range, since the room or area would be designated for that system and a firearms-based FATS is a range activity.

Live-fire proficiency is critical for the effective implementation of licensee protective strategies. Section VI, paragraph E.1.(f) of Appendix B to 10 CFR Part 73 recognizes the perishable nature of live-fire proficiency, which is why it requires licensee security personnel to participate in a range activity approximately every 4 months (i.e., three times per year).

8.14.3 The use of a FATS can result in some tactical advantages over live-fire training, such as more realistic decision making and target identification, or reduced risk when firing while moving. However, even a firearms-based FATS does not adequately replicate the physical or the psychological aspects of a firearm loaded with live ammunition. In addition, use of a FATS results in significant negative training, including no muzzle rise during target engagement and the absence of live firearms and ammunition effects, such as mechanical offset at close distances, noise, stress, and concussive effects. For these reasons and consistent with the "Staff Position and Path Forward for Firearms Training Simulators" (*See* Ref. 14):

8.14.3.1 Licensees may use a firearms-based FATS to satisfy one of the three required annual range activities. Licensees should rely on live-fire activities to satisfy the other two range activity requirements to ensure their security personnel maintain adequate firearms proficiency and can effectively implement their protective strategies during design basis threat attacks.

8.14.3.2 Licensees should not use a non-firearms-based FATS to satisfy any range activity requirement. A non-firearms-based FATS does not use an actual firearm(s) and, therefore, can have inherent limitations that prevent licensees from familiarizing their security personnel with assigned weapons, including the firearms used to implement licensee protective strategies. Consequently, the training accomplished with non-firearms-based FATS would not comply with the staff's application of the range and range activity definitions in Title 10 of the U.S.C., Sections 101(e)(1)(A) and 101(e)(2)(B).

8.14.4 Like FATS, laser engagement equipment (e.g., MILES, Saab) can enable licensees to derive benefits that cannot be achieved at a traditional (aka static) live-fire range. For example, licensees can permit their personnel to practice response strategies and tactics inside operational plant structures like power blocks, essentially making the plant the 'range,' which enables the members to train against human adversaries in the actual environments in which they would likely be fighting during a real-world attack. And, although laser engagement weapons do not meet the definition of a firearm under Section 921(a)(3)(A) in Title 18 of the U.S.C. (i.e., they have modifications that prevent them from being readily restored to their original firing configurations), they are typically functionally identical to the firearms licensees' personnel carry while on shift (e.g., optics, caliber, cycle of operation, etc.). Laser engagement weapons require blank rounds to operate, and personnel have opportunities to load and unload weapons, and practice reactions to stoppages under the stress of a simulated combat environment. The principal tradeoffs of using laser engagement systems are no actual firearms are used and no actual projectiles are fired. Consequently, such systems can provide reasonable assurance that personnel have the tactical skills to perform effectively in a combat environment, but they provide less assurance regarding the members' marksmanship skills than live-fire ammunition and no assurance of the capabilities of the firearms and ammunition licensees rely on to implement their protective strategies. Additionally, artificially lit training environments are used if licensees do not extinguish plant lighting, particularly inside plant structures where the only available light may be from emergency (e.g., Appendix R to Part 50) lighting.

8.14.4.1 Provided the conditions in 8.14.4.1.1 and 8.12.4.1.2 are met, licensees may use laser engagement equipment (e.g., MILES, Saab) to satisfy one of the three required annual range activities. Licensees should rely on live-fire activities to satisfy the other two range activity requirements to ensure their security personnel maintain adequate firearms proficiency and can effectively implement their protective strategies during design basis threat attacks.

8.14.4.1.1 Personnel are equipped with laser engagement weapons (e.g., MILES, Saab) that are functionally identical to the actual firearms uses to implement the licensee's protective strategy (e.g., optics, caliber, cycle of operation, etc.).

8.14.4.1.2 The 'range' for the laser engagement training is inside the protected area and focuses on the structures and areas in which personnel would be implementing the licensee's protective strategy.

8.14.5 Like FATS and MILES, licensees training with Simunition® can replicate many live-fire elements and enable personnel to react to actual projectiles as opposed to noises or vibrations. The effective range of Simunition® is significantly shorter than live ammunition; however, its use can reinforce the difference between cover and concealment, and sound tactical movement. Other advantages of Simunition® are: 1) licensees' firearms sighting systems can be mounted on firearms loaded with Simunition® to improve realism; 2) tactical training can be conducted in adverse environmental conditions like rain and fog; 3) licensees can train personnel how to correct stoppages under stress, which provides better assurance the members can execute proper and effective immediate or remedial actions and firearms transitions, when possible; and 4) Simunition® is loaded into magazines like live ammunition.

8.14.5.1 Licensees using Simunition® should be aware that the projectiles may injure personnel or adversely impact plant equipment. Licensees should provide proper personal protective equipment to personnel, which can include security duty equipment.

8.14.5.2 Licensees may use Simunition® training to satisfy one of the three required annual range activities. Licensees should rely on live-fire activities to satisfy the other two range activity requirements to ensure their security personnel maintain adequate firearms proficiency and can effectively implement their protective strategies during design basis threat attacks.

8.14.6 Licensees using FATS, laser engagement equipment, or Simunition® to meet requirements in Section VI, paragraphs E.1.(a)–(f) in Appendix B to 10 CFR Part 73, should not use any combination of those methods to satisfy more than one of the three required annual range activities. Licensees should rely on live-fire activities to satisfy the other two range activity requirements to ensure their security personnel maintain adequate firearms proficiency and can effectively implement their protective strategies during design basis threat attacks.

## 9. Weapons Qualifications and Requalification

Consistent with Section VI, paragraphs D.2, E.1.(b), and F.5.(a) of Appendix B to 10 CFR Part 73, personnel of the security organization shall be qualified and requalified on assigned weapons or weapon types.

**9.1** Qualifications should be accomplished with the weapon and ammunition assigned for use while on duty or their equivalent (i.e., similar in recoil, caliber and bullet weight).

**9.2** Non-duty ammunition (i.e., frangible ammunition) may be used in lieu of the duty ammunition for firearms qualifications provided that the ammunition meets the requirements in Section VI of Appendix B to10 CFR Part 73 and the Commission-approved Training and Qualification plan.

**9.3** If unable to achieve a requisite qualification or requalification, an individual must not be assigned or returned to armed duty until the individual has completed qualification or been remediated on the requalification item and certified as qualified.

**9.4** Licensees may provide remedial training for personnel requiring additional firearms instruction to qualify on the specific firearms qualification course. Typical remedial firearms training could include the following:

(a) one-on-one instruction on basic fundamentals of marksmanship beginning with dry-firing exercises, if applicable, advancing to live-fire practice, and culminating in a qualification attempt; and

(b) analysis of all results with the shooter to remedy the identified problem(s).

**9.5** A qualified training instructor must document, with input from other qualified training organization personnel, as appropriate, and a security supervisor must attest to, the qualification and requalification of each individual.

**9.6** Licensees should qualify their personnel using targets that replicate real-world attributes, particularly size and observable characteristics. For example, licensees using standard a full-profile silhouette target (e.g., National Rifle Association B-27 target) to simulate an adversary running perpendicular to a firing position (e.g., along a fence line) should reduce the width of the target to reflect the fact that an adversary would present only a side profile to the firing position. An acceptable method for reducing the size of a B-27 target is to vertically fold the sides of the target to the rear, so the target's torso is no more than 12 inches wide.

## 10. Alternate Firearms Qualification Programs

**10.1** Licensees may utilize a firearms qualification program other than those listed in Appendix B to 10 CFR Part 73 if the licensee documents how the alternative firearms qualification program satisfies NRC requirements.

10.2 Once the qualification courses have been designed, licensees may submit them to any recognized entity listed in Section 11 below, for certification before the courses are implemented. The licensee may use current qualification courses developed and certified by these entities; however, such courses may not be modified for use unless re-certified.

## 11. Firearms Qualification Courses

Consistent with Section VI, paragraph E.1.(b) of Appendix B to 10 CFR Part 73, all armed personnel assigned duties and responsibilities involving the use of weapons must be qualified on each weapon type that the individual will be assigned.

Consistent with Section VI, paragraph F.4 of Appendix B to 10 CFR Part 73, armed personnel shall qualify by achieving the standards and scores established by a federal- or state-approved law enforcement qualification course or an equivalent nationally recognized course.

Examples of equivalent nationally recognized courses include courses recognized by the National Rifle Association, U.S. Department of Defense, the International Association of Law Enforcement Firearms Instructors, and the firearms qualification courses described in Appendix H, "Weapons Qualification Criteria," to 10 CFR Part 73.

### Handgun

Consistent with Section VI, paragraphs F.3.(a) and (b) of Appendix B to 10 CFR Part 73, licensees shall conduct handgun qualification courses for daylight and night fire to evaluate the shooter's marksmanship and firearm manipulation skills under both daylight and reduced-light conditions. The minimum qualifying score for each course must be 70 percent of the maximum obtainable target score.

11.1.1 Qualification courses should include a predetermined amount of ammunition, type of target(s), and scoring system to be used (e.g., 60 rounds fired at a B-27-type target with the maximum score of 300 points divided by 3).

11.1.2 Licensees should develop a typical daylight handgun qualification course which includes the following:

(a) moving from one shooting position to another (e.g., standing to kneeling, standing to prone) before, or during, a course of fire;

(b) reloading;

(c) dominant (firing) hand and non-dominant (supporting) hand shooting;

(d) timed stages of fire (e.g., two rounds in 3 seconds, two rounds in 5 seconds, depending on distance from target) and multiple rounds fired at the target (stationary or turning) during the stage of fire (e.g., two rounds, four rounds, eight rounds, and reload);

(e) shooters engaging the targets from multiple distances, starting from a close or distant proximity to the target and gradually increasing or decreasing distance from the target (i.e., 7, 10, 15, and 25-yard lines or 25, 15, 10, and 7-yard lines);

(f) shooters engaging the targets from the standing, kneeling, and prone positions; and

(g) shooters engaging the targets while drawing the firearm from the holster.

## 11.2 Semi-Automatic Rifle

Consistent with Section VI, paragraphs F.3.(a) and (b) of Appendix B to 10 CFR Part 73, licensees shall conduct semi-automatic rifle qualification courses for daylight and night fire to evaluate the shooter's marksmanship and firearm manipulation skills under daylight and reduced-light conditions. The minimum qualifying score for each course must be 80 percent of the maximum obtainable target score.

Consistent with Section VI, paragraph C.1.(b)(3) of Appendix B, security personnel must be trained and qualified in the use of all necessary devices. Accordingly, all personnel of the licensee's security organization that use multiple sighting systems must qualify with the primary sighting system and successfully complete familiarization training with applicable weapons using each secondary sighting system (i.e., optics, thermal scope, iron sights) as required to implement the site's protective strategy.

11.2.1 The use of multiple brands and models of primary sights may require multiple qualifications. If a documented evaluation determines that the magnification and minutes of angle of different brand and model sights are sufficiently similar, then a separate qualification with each sight is not required.

11.2.2 Qualification courses should include a predetermined amount of ammunition, type of target(s), and scoring system to be used (e.g., 60 rounds fired at a B-27-type target with the maximum score of 300 points divided by 3). For range facilities that cannot accommodate firing at increased distances, licensees may use smaller targets to simulate increased distances consistent with the target manufacturer's specifications (e.g., a 50-percent reduction in target size will increase the distance by a factor of 2).

11.2.3 Licensees may develop a typical daylight semi-automatic rifle qualification course which includes the following:

(a) moving from one shooting position to another (e.g., standing to kneeling, standing to prone);

(b) re-loading;

(c) timed stages of fire (e.g., two rounds in 5 seconds depending on distance from target) and multiple rounds fired at the target (stationary or turning) during the stage of fire (e.g., two rounds, four rounds, eight rounds, and reload);

(d) shooters engaging the targets from multiple distances between 25 and 200 yards or up to the maximum distance of the range and/or defensive strategy requirements for engagement with adversaries;

(e) shooters engaging the targets from the standing, kneeling, and prone positions; and

(f) use of rifle slings and/or bipods or tripods for shooting support (if used on duty).

## 11.3 Shotgun

Consistent with Section VI, paragraphs F.3.(a) and (b) of Appendix B to 10 CFR Part 73, licensees shall conduct shotgun qualification courses for daylight and night firing to evaluate a shooter's marksmanship and firearm manipulation skills under daylight and reduced-light conditions. The minimum qualifying score for each course must be 70 percent of the maximum obtainable target score.

11.3.1 Typically, when the target is scored for a shotgun qualification course, any projectile impression or cutting of the silhouette of the human form is scored as one point.

11.3.2 Typical qualification courses should quantify a shooter's ability to accurately discharge his or her firearms in a controlled environment. Licensees should develop and conduct qualification courses as a performance-based, critical-task test of each shooter's ability to meet the requirements in the licensee's approved Training and Qualification plan. Qualification courses should include a predetermined amount of ammunition, type of target(s), and scoring system to be used (i.e., 8 rounds of 00 buckshot fired at a B-27-type target with the maximum score of 72 points or a minimum of 10 rounds of rifle slugs fired at a B-27-type target with the maximum score of 10 points).

11.3.3 Licensees may develop a typical daylight shotgun qualification course, which includes the following:

(a) moving from one shooting position to another (i.e., standing to kneeling) before, or during, a course of fire;

(b) re-loading;

(c) strong hand and support hand (non-dominant, commonly known as weak hand) shooting;

(d) timed stages of fire (i.e., two rounds in 3 seconds, two rounds in 5 seconds, depending on distance from target) and multiple rounds fired at the target (stationary or turning) during the stage of fire (i.e., two rounds, four rounds, and reload);

(e) shooters engaging the targets from multiple distances, starting from close or distant proximity to the target and gradually increasing or decreasing distance from the target (i.e., 10, 15, or 25 yards or beyond for buckshot and out to 50 or 100 yards for slugs;

(f) shooters engaging the targets from the standing and kneeling positions, and

(g) shooters engaging the targets from the ready/carry positions (i.e., weapon in shooter's hands with no sight alignment attained).

## 11.4 Low-Light Qualifications

11.4.1 Reduced-light (night-fire) qualification courses should be developed to include some of the elements listed above for the daylight qualification course. Night-fire qualifications should apply conditions that reasonably approximate expected loss-of-lighting conditions at the site. Licensee light-level standards and procedures should be used during periods of reduced-light range activities and are site specific. Licensee procedures would normally address these requirements. Qualification courses should include a predetermined amount of ammunition, type of target(s), and scoring system to be used (e.g., 60 rounds fired at a B-27-type target with the maximum score of 300 points divided by 3).

11.4.2 A heightened level of safety should be maintained during reduced-light qualification. Training to familiarize personnel with operations in reduced-light training should be provided. Substituting commercially available light-reducing equipment (e.g., welder's goggles or dark-light simulator eyewear) should not be allowed when conducting reduced-light qualification.

11.4.3 Control of range activities during reduced-light qualification is critical for the overall safety of all personnel. Firearms instructors may consider the use of lighting devices to identify themselves, as well as shooters, during reduced-light qualification. Firearms instructors may consider the preservation of all personnel's night vision when using these lighting devices.

11.4.4 The security staff of licensees that approve the use of flashlights for range activities should become familiar with the equipment. Licensees should develop specific reduced-light courses of fire that include shooting both with and without flashlights.

11.4.5 Licensee light-level standards and procedures should be used during periods of reduced-light range activities and are site specific. Licensee procedures would normally address these requirements.

## 11.5 Tactical Weapons Qualification Course

Consistent with Section VI, paragraph F.2, of Appendix B to 10 CFR Part 73, a tactical qualification course must be conducted for each weapon type or model used by an armed member of the licensee's security organization. The licensee's developed tactical qualification and requalification courses must describe the performance criteria needed to include the site-specific conditions (i.e., lighting, elevation, fields-of-fire) under which assigned personnel shall be required to carry out their assigned duties.

11.5.1 The course should assess the shooter's ability to perform realistic and simulated aspects of the site's protective strategy with all contingency equipment. The design of the tactical qualification course should exercise and evaluate a shooter's ability to perform required armed officer skills and marksmanship fundamentals while experiencing stress from performing non routine tasks, such as tactically moving, pivoting, engaging multiple targets, recovering from simulated weapons stoppages (using dummy rounds), using available cover, or firing after donning a gas mask. Each site may determine its own specific tactical requirements (e.g., barrier or fence, specific no-shoot areas, or devices) and incorporate them into the course. Since range facilities differ from site to site, the courses may be modified to accommodate the safety requirements for each range.

11.5.2 The tactical qualification course emphasizes armed officer and marksmanship skills relating to assessment and identification, tactical engagement and movement, and advantageous use of environment and resources while facing multiple threats (targets). The licensee should consider designing the course to replicate licensee defensive positions (e.g., size of shooting ports, elevations), distance or yardage of shots, and potential site situations.

Consistent with Section VI, paragraph F.3.(c) of Appendix B to 10 CFR Part 73, the minimum qualifying score for the tactical qualification course must be a score of 80 percent of the maximum obtainable score.

11.5.3 The licensee's protective strategy should be considered in developing the course of fire. The course should reflect specific implementation aspects that the licensee identifies in its contingency plan, licensee Training and Qualification plan, and implementing procedures.

11.5.4 The tactical qualifications course should be conducted consistent with all firearms safety instructions and applicable site-specific safety instructions. Limitations on range use must be observed and all tactical shooting courses should be conducted with a ratio of at least one instructor to one shooter. For all tactical firing courses, the firearms should be loaded in the standard duty configuration and carried consistent with the site security plans and implementing procedures.

11.5.5 The annual tactical qualification course includes the combined use of the handgun and shoulder-fired weapons employed in a contingency event at the site. Each shooter must achieve an overall combined qualifying score of 80 percent that accounts for all weapons systems used.

11.5.6 The scoring for this course should incorporate proficiency criteria from both weapons operations and marksmanship as well as physical and tactical ability.

11.5.7 Qualification standards should be based on the percentage derived from the number of targets successfully engaged and the successful completion of the course within the specified time. To determine the qualifying score, the licensee should establish a basis for the maximum achievable score/percentage for the weapons operation and marksmanship aspect of the course (e.g., 100/100 percent). A point value should be assigned to each target consistent with the total number of targets within the course that equals the maximum achievable score/percentage (e.g., 25 targets at four points each equals 100/100 percent). The licensee should then establish a basis for the maximum allowable time to successfully complete the course. For this aspect of the qualification criteria, the licensee should use known timelines consistent with the implementation of its protective strategy for movement, tactics, and the negotiation of obstacles within the course. The standard should also include reasonable consideration for the time duration of firing engagements (target exposure time), range equipment operations (delays in target system operations), and

safety (any measure instituted to increase safety). The standard for the maximum allowable time to successfully complete the course could be associated with a percentage of score or a pass/fail in the form of a time limitation.

11.5.8 Each licensee should document its methodology for determining that successful completion of its tactical qualification course demonstrates acceptable proficiency. The expectation for the qualification criteria of this course must not be less than the minimum total of 80 percent and a time that is less than the maximum allowable time limit as identified in the licensee Training and Qualification plan and implementing procedures. A qualifying score of less than 80 percent or a course completion time in excess of the maximum allowable time limit, as identified in the licensee Training and Qualification plan, would require remedial training and subsequent requalification.

## 11.6 Course of Fire Requirements for the Tactical Qualification

Consistent with Section VI, paragraph F.5, of Appendix B to 10 CFR Part 73, personnel of the security organization shall be re-qualified for each assigned weapon at least annually consistent with Commission requirements and the Commission-approved Training and Qualification plan, and the results documented and retained as a record.

11.6.1 The courses of fire for the training of armed security personnel should as minimum include the following:

(a) the combined use of handguns and shoulder-fired weapons employed during a contingency event according to the site's protective strategy;

(b) firing from a reasonable and representative facsimile of licensee defensive positions, elevations, and distances;

(c) appropriate levels of stress and physical demands (e.g., engaging targets while on the move);

(d) proper cover and concealment tactics while engaging multiple targets, moving targets, and decision-making targets;

(e) the ability to transition from one type of firearm to another;

(f) the ability to recover from simulated weapon stoppages (e.g., dummy rounds);

(g) adherence to the safe handling of firearms during simulated courses of fire;

(h) firing at multiple targets, loading, and reloading while wearing a protective mask;

(i) non-dominant (support) hand shooting; and

(j) use of the minimum quantity of combined handgun and shoulder-fired weapon ammunition necessary to demonstrate the ability to effectively implement the licensee's protective strategy.

11.6.2 The amount of ammunition distributed among all weapons and fired during the course should be consistent with the licensee's protective strategy (i.e., it should match the standard ammunition

load carried by the armed responder), as identified in the licensee's contingency plan and implementing procedures. If the protective strategy identifies ammunition resupply points, the tactical course of fire may include them as well.

11.6.3 When developing the tactical qualification course, licensees should rely on the experience and expertise of trained and qualified firearms instructors. Certified instructors should use available resource material (internal and external), including firearms manuals and best practices benchmarked throughout the industry. A list of additional resources that may assist a licensee in the development of the tactical course of fire appears at the end of this guidance document within the Bibliography section.

11.6.4 A tactical course of fire should challenge the tactical knowledge, skill, and ability of the shooter at various stages of practical demonstration when performing simulated but realistic aspects of the site's protective strategy. The course should reflect specific implementation aspects that the licensee identifies in its contingency plan and implementing procedures and that the licensee's Training and Qualification plan and implementing procedures must support. For example, in its contingency response plan and implementing procedures, a licensee identifies towers that are located at the perimeter for the interdiction of adversaries approaching the protected area (consistent with the licensee's use of force continuum). The licensee should consider the development of a stage of fire within its tactical course of fire that addresses this aspect. The licensee's implementing procedures for training would also have to address this aspect, including existing documentation demonstrating that the shooter received (at a minimum) familiarization training in this area.

11.6.5 The course of fire should include specific pieces of equipment staged throughout the range that are designed to provide the shooter with simulated, but realistic, aspects of the site's protective strategy. The equipment should include barricades to simulate walls or sides of buildings found inside the protected area, or actual or replicated pieces of plant equipment (e.g., piping or pumps that have been retired or replaced and plant stairwells) staged throughout the range for added realism. The range design should include replicas or reasonable facsimiles of towers and defensive positions found inside the protected area. The licensee should assess the impact of the changes to the range configuration for shooter safety and overall range safety.

## 11.7 Course of Fire Stages for the Tactical Qualification Course

11.7.1 As with any live firearms training or qualification evolutions, certain aspects of an actual firearms engagement cannot be demonstrated as they might actually occur because of safety concerns. It is also understood that a trained and qualified firearms instructor may have to specifically control certain aspects of a firearms qualification course to cause a shooter to demonstrate all required skills as well as to ensure safety. Actions that address safety and the complete demonstration of all required skills must be considered and implemented in the development and conduct of a tactical qualification course.

11.7.2 Licensees should attempt to minimize instructor controls and interaction during the conduct of tactical qualification courses to ensure that the shooter has the ability to operate in a contingency environment while demonstrating all skills required of an armed officer.

11.7.3 Safety is paramount during all stages of the tactical qualification course. Some stages within the course of fire may require the shooter to have all contingency equipment donned (or available) to demonstrate the ability to effectively implement the NRC requirements, NRC-approved site security plans, site contingency procedures, and site implementing procedures. The following

guidance for a tactical course of fire is provided below to demonstrate one acceptable approach to address each element of a tactical qualification course.

(a) Element 1, Objective: Combined use of handguns and shoulder-fired weapons employed during a contingency event.

The requirements contained in Section VI, paragraph F.2 of Appendix B to 10 CFR Part 73, "Tactical weapons qualification," state, in part, that licensee developed tactical qualification courses must describe the performance criteria to carry out assigned duties.

(1) The licensee should describe the conditions under which the shooter would be expected to carry or have available, all handguns and shoulder-fired weapons necessary to meet the performance criteria for a tactical weapons qualification course, and describe the successful completion of the course of fire designed to meet the site's protective strategy as described in the Commission-approved Safeguards Contingency Plan.

(2) The shooter may use any weapon at any stage of the course to effectively engage the required number of targets.

(3) If the licensee uses more than one type of shoulder-fired weapon as described in its training and qualification plan, contingency plan, protective strategy, and implementing procedures (e.g., M-4 and AR-15 or M-4 and shotgun), the licensee should describe how the performance criteria is achieved for each type of shoulder-fired weapon used in the tactical course of fire.

(4) All weapons included in the tactical course of fire should be used in the course of fire consistent with their use and identification in the licensee's training and qualification plan, contingency plan, protective strategy, and implementing procedures (e.g., AR-15 in fixed posts, M 4 for armed responders).

(5) Sighting system configuration and use in the tactical course of fire should be consistent with that identified by the licensee as the primary sighting system for the particular weapon system, as employed and identified in the licensee's contingency plan, protective strategy, and implementing procedures.

(6) If a gas mask is required to implement the licensee's defensive strategy, the licensee's familiarization firearms training and marksmanship qualification courses should also include the use of secondary sighting systems or other sighting systems for specific applications while wearing a gas mask.

(7) The use of sighting systems other than those identified by the licensee as the primary sighting system for the specific weapon during the conduct of the tactical qualification course is left to the discretion of the licensee.

(8) The shooter would not have to carry more than one shoulder-fired weapon at any one time unless required to do so by the site protective strategy.

(9) Additional shoulder-fired weapons could be located at other stages of the course of fire, and the shooter could transition to those weapons in some situations, at a time specified by the certified firearms instructor or at a predetermined time during the course of fire.

(10) Range designs and range safety should be considered to determine the use of specific contingency or enhanced equipment or weapons (e.g., considering yard line or distance of target engagement and backstop configuration for the safe use of each weapon) during each stage within the course of fire.

(b) Element 2, Objective: Firing from a reasonable and representative facsimile of licensee defensive positions, elevations, and distances.

The requirements of Section VI, paragraph F.2 of Appendix B to 10 CFR Part 73 are applicable to this element.

(1) The licensee's tactical course of fire should have reasonable facsimiles of licensee defensive positions, elevations, and fields of fire and include those facsimiles as a stage or stages in the course of fire.
(2) To provide reasonable assurance of his or her ability to effectively execute the duties required by the protective strategy, the shooter should demonstrate the application of performance criteria needed to negotiate the course and engage the required targets.
(3) The facsimile of the defensive positions should be constructed out of alternate materials and built with the objective of giving the shooter a similar perspective of elevations, fields of fire, and distances that exist in the actual defensive positions used for the protective strategy inside the protected area.
(4) The elevations and distances of the defensive position facsimiles do not have to exactly match the actual ones in the protected area.
(5) The design of the facsimiles should include consideration of actual protected area shooting positions, shooting port size, and approximate fields of fire, and should reasonably replicate the height, distance, and angle on a representative scale to produce similar effects. Firearms training resource manuals and documents for elevated position design and angle calculations are useful in this task. Smaller targets can be used to simulate distance and distant target acquisition for the shooter.
(6) If the licensee's protective strategy requires the armed responder to engage moving targets from ground defensive positions and elevated defensive positions to defend the facility, then the tactical course of fire should include stages for moving target engagement both from ground and elevated positions, to demonstrate how the performance criteria for adversary engagement satisfies the licensee's protective strategy.
(7) Each licensee should be able to articulate in writing its methodology for replicating and simulating the actual defensive positions used in the training conducted at the firing range for the tactical qualification course.

(c) Element 3, Objective: Appropriate levels of stress and physical demands (e.g., engaging targets while on the move).

The requirements of Section VI, paragraphs B and E of Appendix B to 10 CFR Part 73 are applicable to this element.

(1) The course of fire should include, consistent with paragraph E.1.(d)(6), levels of stress and, consistent with B.4.(b)(1) physical demands representative of the site's protective strategy.
(2) Physical stress inducers, such as running, can be used to mimic the actual physical stress a responder experiences during a contingency event in the protected area. If running is used to induce stress, the specific distance associated with the most demanding timeline should be used.
(3) Physical stress may be induced by actually running the predetermined distance or running in place for a specific period of time before negotiating the course or engaging targets.

(4) Mental stress inducers (e.g., having the shooter simulate communication with the CAS or demonstrating tactical reloads) can add realism and should be included during the course of fire.
(5) In addition, physical and mental stress can be simulated by having the shooter engage targets while on the move between positions of cover. This demonstration or stage would require the shooter to implement reactionary measures such as engaging the target in the open while advancing to cover or obtaining cover rapidly and returning fire.
(6) The course of fire should also include the performance criteria associated with engagement near target sets and the application of cover and concealment consistent with paragraphs E.1.(d)(8) and E.1.(d)(10), (e.g., moving from multiple positions of cover, out of the prone and kneeling positions, or up and down elevated positions or stairwells) that reflect the plant environment and the implementation of the licensee's protective strategy.

(d) Element 4, Objective: Proper cover and concealment tactics while engaging multiple targets, moving targets, and decision-making targets.

The requirements of Section VI, paragraph E of Appendix B to 10 CFR Part 73 are applicable to this element.

(1) To successfully complete the course of fire, the shooter should be able to recognize and then use proper techniques for cover and concealment as required in paragraph E.1.(d)(10).
(2) The shooter should demonstrate the performance criteria associated with methods of approaching, moving from, and using cover and concealment while engaging multiple targets, moving targets, and situational or decision-making targets (i.e., threat versus non threat-related).
(3) Although the determination of the proper application of this aspect is subjective, licensees should consider some method of accountability for improper application of cover and concealment objectives that may negatively affect the shooter's qualification score.

(e) Element 5, Objective: The ability to transition from one type of firearm to another (in the event of a weapons stoppage or malfunction or change in deployment technique).

The requirements of Section VI, paragraphs E and F.2 of Appendix B to 10 CFR Part 73 are applicable to this element.

(1) The licensee tactical weapons qualifications course of fire should be constructed such that the shooter demonstrates the safe weapons handling required in E.1.(d)(4).
(2) The actual weapons transition should take place without the assistance or direction of the certified firearms instructor.
(3) The certified firearms instructor should always be able to react to safety concerns or unsafe conditions when warranted during the course of fire.
(4) A common practice to achieve adequate safety controls for this type of firearms drill is to have an instructor/safety officer accompany each shooter through the course on a one-on-one basis. Safety officers may be other qualified and experienced armed security officers, security supervisors, or other security staff.

(5) Acceptable methods for this stage of fire include a built-in weapon malfunction scenario during the course or an instructor-induced weapon malfunction at a certain stage which would require the shooter to transition to another firearm. This transition may be demonstrated with or without the use of cover or concealment.

(6) Audible commands such as "gun down" or "malfunction" are not recommended as signals for a simulated weapon malfunction as they are inconsistent with the physical stimuli experienced during an actual weapon stoppage or malfunction.

(7) The use of dummy rounds exactly replicates a weapons stoppage or malfunction through the physical stimuli associated with the event. Exact and realistic re-creation of this event develops the shooter's sense of recognition and reactionary response to actual weapons stoppages or malfunctions.

(8) The weapon stoppage can be accomplished by causing the shooter to perform a retention or tactical reload with a magazine possessing one, two, or three live rounds at the top followed by a dummy round that would cause the stoppage.

(9) As an alternative, the instructor can provide the magazine to the shooter at the position of cover just before the stage, or the magazine may be color-coded and carried by the officer with pre-designated instructions to use it at the proper stage in the course. This will ensure that the stoppage will occur at the proper stage in the course.

(10) Alternatively, all of the shooters' magazines could be loaded to have a dummy round in either the second, third, or fourth position (each magazine would be different) to ensure that a stoppage occurs on each magazine at the desired stage without the officer's absolute knowledge.

(11) If the shooter performed an immediate action instead of a weapons transition and continued with the primary weapon system, the stage of fire for the weapons transition requirement would be lost.

(12) All reloads for this stage of fire should be performed at a position of cover before negotiating this particular part of the course.

(f) Element 6, Objective: The ability to recover from simulated weapon stoppages and malfunctions (e.g., dummy rounds).

The requirements of Section VI, paragraph E of Appendix B to 10 CFR Part 73 are applicable to this element.

(1) The course of fire should, consistent with E.1.(d)(9), give the shooter an opportunity to demonstrate the performance criteria for the appropriate immediate action for stoppages or malfunctions occurring with each weapon type used during the course of fire.

(2) Recovery also includes the shooter's ability to reacquire the target after the weapon stoppage or malfunction is cleared or when the shooter transitions to another weapon. This should be accomplished through the use of dummy rounds that are preloaded in the ammunition magazines before the start of the course.

(3) At a minimum, one dummy round should be loaded in each magazine before the beginning of the course and should be staggered to minimize predictability.

(g) Element 7, Objective: Adherence to the safe handling of firearms during simulated courses of fire.

The requirements of Section VI, paragraph E of Appendix B to 10 CFR Part 73 are applicable to this element.

(1) Throughout the various stages of the course of fire, the shooter should, consistent with E.1.(d)(4), demonstrate the ability to handle each weapon type safely.
(2) This includes consideration of muzzle control, safe movement with loaded, charged, and drawn weapons, trigger finger placement, and properly clearing and restoring all weapons to a safe condition.
(3) A demonstrated disregard for the safe handling of firearms and range safety should cause the instructor/safety officer to stop the course, provide the officer with remedial training on the safe handling of firearms, and require the officer to perform the course again in its entirety.

(h) Element 8, Objective: Firing at multiple targets, loading, and reloading while wearing a gas mask.

The requirements of Section VI, paragraphs F.2 and G.2.(b) of Appendix B to 10 CFR Part 73 are applicable to this element.

(1) The course of fire should give the shooter an opportunity to demonstrate the performance criteria associated with the shooter's ability to use the gas mask described in G.2.(b)(1).
(2) While wearing the gas mask, the shooter should engage a minimum of two targets and demonstrate a reload. For example, a licensee tactical qualification course may require the shooter to don his or her gas mask and fire at multiple targets while loading and reloading with the contingency weapon.
(3) This same tactical qualification course does not have to include the use of the gas mask with the handgun. However, the use of a gas mask with the handgun should be demonstrated in another area of the training program (e.g., firearms familiarization).
(4) The certified firearms instructor can initiate the shooter's use of the gas mask by giving the audible warning of "gas, gas, gas," or the shooter can begin using the mask at a predetermined stage within the course signaled by the deployment of smoke in the immediate vicinity of the shooter.
(5) The gas mask, as one element of the personal equipment described in G.2.(a), should be deployed as issued to the individual, or from its ready access location as described in the licensee protective strategy, and within an acceptable timeline identified for the specific mask type consistent with the manufacturer's specifications, and the licensee's Training and Qualification plan and implementing procedures.
(6) During this stage of fire, it is important to ensure that officers do not break the seal of the gas mask to accommodate stock-to-cheek weld when firing shoulder-fired weapons.
(7) This stage of the course should require the shooter to demonstrate the ability to communicate while wearing the gas mask.

(i) Element 9, Objective: Non-dominant (support) hand shooting.

The requirements of Section VI, paragraph F of Appendix B to 10 CFR Part 73 are applicable to this element.

(1) Once an individual has demonstrated the required level of proficiency with dominant hand shooting, and during any stage of fire within the course, the shooter should, as described in the procedures implemented by the licensee, demonstrate the use of the supporting or non-dominant hand to fire.
(2) The purpose of this element is for the shooter to gain familiarity with shooting and handling the assigned weapon(s), including reloading and target acquisition, with the supporting or non-dominant hand when aspects of the site's protective strategy or an injury cause the shooter to use this technique to engage a threat.
(3) This objective may be met by requiring the shooter to engage targets with the shoulder-fired weapon(s), the handgun, or both using the support or non-dominant hand technique.
(4) Licensees that develop tactical qualification courses that require support or non-dominant hand firing using only one of the weapons systems carried by their response force members should ensure that this technique is demonstrated for the remaining weapons systems in another area of their training programs (e.g., firearms familiarization).

(j) Element 10, Objective: Use of the minimum quantity of combined handgun and shoulder-fired weapon ammunition necessary to demonstrate the ability to effectively implement the licensee's protective strategy.

Consistent with NEI 03-12, "Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan, [and Independent Spent Fuel Installation Security Program]":

(1) The amount of ammunition distributed among all weapons and fired during the course should be consistent with the amount of ammunition described in the licensee's security plan.
(2) The shooter should carry the minimum amount of duty ammunition required by the protective strategy at the site during the conduct of the tactical qualification course.
(3) The standard ammunition load identified in the licensee's contingency plan, protective strategy, and implementing procedures for armed responders should be carried during the tactical course of fire. The total number of rounds includes dummy rounds.

## 11.8 General Implementation Guidance

11.8.1 Typically, a tactical qualification course should be a timed evolution for the shooter and consist of a combination of all the elements required in the licensee's contingency response plan, protective strategy, and implementing procedures, which must be consistent with the licensee's Training and Qualification plan.

11.8.2 The elements should be presented in a continuous evolution (i.e., elements should not be broken out into discrete training evolutions or other courses of fire), with various stages of fire that constitute a single course. All elements and stages of the tactical qualification course should consider range safety.

11.8.3 The time given to a shooter for completion of the tactical qualification course should be consistent with response timelines in the protective strategy and include the time needed to complete each stage of the course and range safely. Each licensee should document and be able to

articulate its methodology for determining an acceptable time interval for safe and successful completion of the course of fire.

11.8.4 If a firing range malfunction or a weapon or equipment malfunction beyond the shooter's ability to safely resolve hinders the shooter's ability to complete the tactical qualification course, the shooter should be allowed to continue after resolution of the problem (if feasible) or repeat the course. If such incidents occur, range safety should always be addressed by first ensuring weapons safety (e.g., by clearing and unloading the weapon and practicing muzzle discipline) and then resolving the specific problem. The shooter's time should also be stopped, and the shooter held in place while the issue is resolved. Once the issue has been resolved and the firing range is considered clear, the instructor/safety officer should cause the shooter to load and ready the weapons and then continue the course (along with the shooter's time) when directed.

### 11.9 Weapons Requalification Schedule

Consistent with Section VI, paragraphs A. 7 and F.5 of Appendix B to 10 CFR Part 73, annual weapons requalification shall be scheduled at a nominal 12-month periodicity. Annual requirements may be completed up to 3 months before or 3 months after the scheduled date. However, the next annual requalification activity must be scheduled 12 months from the previously scheduled date rather than from the date the training was actually completed.

### 11.10 Short-Cycle Requalification

Consistent with Section VI, paragraph D.2.(a) of Appendix B to 10 CFR Part 73, annual requalification must be scheduled at a nominal 12-month periodicity.

11.10.1 The actual scheduled date (baseline) for the requalification of an annual requirement can be changed (re-baselined) by conducting a requalification activity earlier than the originally scheduled (baseline) date. The next scheduled date for requalification, from that point forward, must be nominally 12 months from the new (re-baselined) qualification date.

11.10.2 Licensees must ensure that, when applying this short-cycle provision to the training schedule for their annual requirements, their schedule for weapons range activities still meets the nominal 4-month periodicity identified in Section VI, paragraph E.1.(f), of Appendix B to 10 CFR Part 73.

## 12. Weapons, Personal Equipment, and Maintenance

Consistent with Section VI, paragraph G.2.(a) of Appendix B to 10 CFR Part 73, the licensee must ensure that each individual is equipped or has ready access to all personal equipment or devices required for the effective implementation of the Commission-approved security plans, the licensee's protective strategy, and implementing procedures.

### 12.1 Weapons

12.1.1 The security shift supervisor, or another individual designated by the licensee, should conduct weapons and ammunition inspections daily, and at a frequency that ensures the proper care and serviceability of the weapons and ammunition and provides assurance that the weapons and ammunition will operate as intended, and when needed.

Consistent with Section VI, paragraph G.1 of Appendix B to 10 CFR Part 73, the licensee must provide armed personnel with contingency weapons and ammunition for use in implementing the site

protective strategy. Licensees and applicants have typically identified the type and quantity of weapons and ammunition that they intend to use in their security plans.

## 12.2 Personal Equipment

As stated in Section VI, paragraph G.2.(a) of Appendix B to 10 CFR Part 73, the licensee shall ensure that each individual is equipped or has ready access to all personal equipment or devices required for the effective implementation of the NRC-approved security plans, the licensee's protective strategy, and implementing procedures.

Consistent with Section VI, paragraph G.2.(b) of Appendix B to 10 CFR Part 73, licensees shall provide armed security personnel, at a minimum, with the following:

(a) Gas Mask, full face;

(b) Body Armor (bullet-resistant vest);

(c) Ammunition/Equipment Belt; and

(d) Two-Way Portable Radio.

## 12.3 Gas Mask, Full Face

12.3.1 Licensees that issue respiratory protection equipment for the purpose of complying with Commission-approved security plans should establish a respiratory protection program consistent with 29 CFR 1910.134, "Respiratory Protection."

12.3.2 Licensees should develop and implement a written respiratory protection program that outlines specific procedures and elements required for gas mask use. A suitably trained program administrator should manage the program. Licensee respiratory protection programs should include the following program elements:

(a) proper selection of respirators,
(b) medical evaluation and fit testing,
(c) care and maintenance,
(d) training program, and
(e) program evaluation.

## 12.4 Body Armor, Bullet Resistant Vest

12.4.1 The National Institute of Justice certifies body armor levels. Based on extensive laboratory tests, body armor is designated as meeting one of six levels (I, IIA, II, IIIA, III, and IV). Level I body armor offers the lowest level of protection, and Level IV offers the highest. The type of weaponry a particular type of body armor can guard against is often used to determine its level. The lowest level body armor can be relied on only to protect against bullets with relatively low energy, which tend to have less force on impact. Some higher-level body armor can protect against higher energy bullets (i.e., .44 magnum and .357 magnum). Body armor at Levels I through IIIA is soft and can be concealed. At Levels III and IV, body armor uses hard or semi rigid plates to defeat high-energy rifle rounds.

12.4.2 Licensees that issue body armor equipment for the purpose of complying with Commission-approved security plans should ensure that the training program clearly describes the distinction between the level of protection offered by body armor and the level of protection offered by a Bullet Resisting Enclosure defensive position, for providing a level of protection commensurate with the DBT.

## 12.5 Ammunition/Equipment Belt

12.5.1 Ammunition used for live-fire training and qualification, blank ammunition for Engagement Simulation System training, and ammunition for other nonlethal training (e.g., dye-marking cartridges) should be of suitable quality for the intended use. Reloaded, reprocessed, or military surplus ammunition should not be used for duty or qualification. Licensees should conduct quality assurance verifications of blank or live ammunition to identify ammunition that does not meet manufacturer specifications.

12.5.2 Ammunition may also have an adverse impact on weapon performance. The licensee should verify that ammunition is properly stored and rotated. Ammunition stored in a high-temperature area, such as a turbine building, may degrade over time. In addition, ammunition handled daily may also degrade. Therefore, licensees should factor the rotation of ammunition into the overall assessment of weapon functionality and reliability.

12.5.3 Many types of ammunition pouches, belts, and tactical vests are available to licensees. Multiple individuals should field test all equipment issued to security officers to ensure its practicality and durability. All individuals must be trained and qualified in the use of the equipment before its issuance. Individuals must configure the issued equipment during range activities as if they are performing assigned security duties.

## 12.6 Two-Way Portable Radio

As stated in Section VI, paragraph G.2.(b) of Appendix B to 10 CFR Part 73, each two-way radio shall have a minimum of two channels for security operations; one for operating and one for emergencies.

Consistent with 10 CFR 73.55(j), the licensee shall establish and maintain continuous communication capability with onsite and offsite resources, as required, to ensure effective command and control during both normal and emergency situations. Each on-duty security officer, watch person, vehicle escort, and armed response force member must be capable of maintaining continuous communication with an individual in each alarm station.

Consistent with 10 CFR 73.55(j)(6), alternate means of communication (e.g., plant paging system, telephone) shall be provided for use in areas of the facility where radio communication is not possible because of radio transmission interference or in situations when it is not advisable.

12.6.1 “Dead spots” created by manmade or natural objects can cause transmission interference. Radio transmissions will reflect off any large object located between the transmitter and the receiver or repeater. This commonly occurs when radio transmission is attempted from inside buildings with thick, reinforced concrete walls or at subterranean levels. Cellular telephones are typically used in these instances. Hardwired telephones or intercom systems can also be used, although they create their own set of tactical disadvantages. In many cases, however, dead spots can be eliminated to a degree by installing radio repeaters in appropriate locations.

12.6.2 Radio transmissions have the potential to create problems with solid-state electrical components. The impact of radiofrequency interference (RFI) on electrical components of nuclear power plants should be evaluated to determine where RFI should be avoided. To prevent potential mishaps, areas where RFI has been determined to have a negative impact on electrical components should be identified. The licensee's safety/security interface program should address the shielding of vital electrical components.

12.6.3 Radio transmissions should be avoided when in the proximity of any known or suspected explosive device. Explosive initiators are often designed to use RFI to actuate the explosive train. Cellular and cordless telephones also produce RFI and their use should be avoided under similar circumstances.

## 12.7 Additional Personal Equipment

Consistent with Section VI, paragraph G.2.(c) of Appendix B to 10 CFR Part 73, and on the basis of its protective strategy and the specific duties and responsibilities assigned to each individual, the licensee should provide, as appropriate, the following additional equipment:

12.7.1 Flashlights and Batteries

12.7.1.1 When choosing a flashlight, licensees should ensure that the flashlight be dependable, strong, and provide sufficient illumination. Armed responders should be trained and qualified to operate the flashlight while conducting firearms activities.

12.7.1.2 Spare batteries should be available, and a battery replacement schedule should be created.

12.7.2 Baton or Other Nonlethal Weapons

12.7.2.1 Licensees should provide the necessary training for each nonlethal weapon (e.g., baton), electroshock weapon (e.g., stun guns or Tasers), mace, or oleoresin capsicum (OC) spray before issuance. Nonlethal weapons instructors should be certified by an organization recognized nationally (e.g., National Rifle Association, Federal Bureau of Investigation, the military) or by the state (e.g., Police Officer Standards and Training).

12.7.2.2 Certifications described in 12.7.2.1 should specify the nonlethal weapon type(s) that the instructor is qualified to teach. The licensee's instructors should be recertified consistent with the standards recognized by a national or state entity at intervals not to exceed 3 years. The licensee should document the training consistent with the KSA matrix of the Commission-approved plans.

12.7.3 Handcuffs

12.7.3.1 Handcuffing is a common method of restraint within the law enforcement community and is used to inhibit an individual's upper body mobility, thereby preventing individuals from using their arms to cause harm to themselves or another individual. Handcuffing may fall into more than one level of the force continuum, depending on the situation and how the techniques are applied.

12.7.3.2 Compliance handcuffing techniques are normally associated with the restraint of a compliant individual who is receptive and cooperative when given verbal commands. Caution should always be exercised when applying compliance handcuffing techniques because a compliant

individual may become combative. Because of the lack of physical force associated with compliance handcuffing, it may be associated with soft physical techniques within the force continuum.

12.7.3.3 Noncompliant handcuffing is the act of forceful physical restraint against the will of an individual who has demonstrated combative characteristics by actively attempting to escape, evade, or engage other individuals in a harmful or offensive manner. Extreme caution should be used before and during the application of noncompliant handcuffing techniques to ensure the safety of all involved. Because of the physical force associated with noncompliant handcuffing (i.e., defensive tactics such as blows, strikes, takedowns), it is normally associated with hard physical techniques within the force continuum.

12.7.3.4 Licensees should include both compliant and noncompliant handcuffing techniques and associated defensive tactics in their training programs to ensure the safety of the security force and other plant personnel. Licensees should also consider including in their training programs situational training (live scenarios and exercises) that includes the application of the force continuum and the measures within the force continuum (e.g., OC spray, defensive tactics, baton, handcuffing). Before issuing defensive equipment, licensees should be sure that personnel have been trained by a qualified instructor.

12.7.4 Security Enhancements (Other Equipment)

12.7.4.1 Licensees should consider the use of other equipment to augment the equipment they possess and to enhance the capabilities of their physical protection programs. Equipment such as binoculars, night vision aids, illumination devices (i.e., hand-fired flares, remote-operated spotlights), and remote-operated duress alarms may be used to enhance detection, assessment, and identification capabilities.

12.7.4.2 Licensees may use other enhancements, such as nonlethal gas (incapacitating agents) through various delivery methods, to delay the approach of adversaries to vital areas and potential targets within the protected area.

## 13. Firearms Maintenance Program

To satisfy the requirements in 10 CFR 73.55(n) and Section VI, paragraph G.3.(a) of Appendix B to 10 CFR Part 73, the licensee shall develop and implement a firearms maintenance and accountability program for all licensee-assigned firearms.

In order to ensure that firearms function as designed by the manufacturer, no modifications should be made to any firearms, firearm accessories (magazines, sights, holsters), or contingency equipment that is not approved by the firearm or equipment manufacturer. A qualified armorer or gunsmith should make all modifications to any firearm. At a minimum, the licensee must implement the maintenance program described below.

### 13.1 Semiannual Test Firing for Accuracy and Functionality

Consistent with Section VI, paragraph G.3.(a)(1) of Appendix B to 10 CFR Part 73, all firearms, whether licensee- or contractor-owned, must be test fired semiannually.

13.1.1 A qualified armorer or a qualified training instructor should conduct or observe the test firing, consistent with procedures and criteria approved by a qualified armorer to ensure accuracy and

reliability. The test firing shall be conducted semiannually (a nominal 6-month period). The semiannual test fire should include the discharge of 10 or more rounds, at a minimum, to determine the functionality, reliability, and accuracy of each weapon. The assessment should also consider seasonal conditions.

13.1.2 Testing activities can be satisfied during scheduled range activities.

13.1.3 Weapons that are unassigned and those that have not been cycled through the range activities within a 6-month period should be test fired and the results documented.

Consistent with Section VI, paragraph G.3.(a)(3), of Appendix B to 10 CFR Part 73, the licensee's firearms maintenance program must include program activity documentation. Licensee implementing procedures should detail a method for documenting test-firing results.

## 13.2 Firearms Maintenance and Cleaning Schedule

Consistent with 10 CFR 73.55(n) and Section VI, paragraph G.3.(a)(2), of Appendix B to 10 CFR Part 73, the licensee shall develop firearms maintenance procedures, which shall, at a minimum, document the licensee's cleaning schedules and cleaning requirements.

13.2.1 Licensee weapons maintenance requirements should be consistent with the firearms manufacturer's recommendations for proper maintenance. Procedures should outline a regular schedule for inspections, types of preventive maintenance, the name of the individual who completed the inspection, the date of the inspection, whether repair is needed, and what actions are necessary before the firearm can enter service (i.e., test fire, function check). If repairs are performed, a new test firing should be completed before the firearm returns to service.

13.2.2 Cleaning procedures should ensure that all licensee owned firearms are operational and can implement the site's protective strategy.

13.2.3 Firearms should be cleaned consistent with the manufacturer's recommendations. A cleaning schedule should be implemented to ensure that all licensee firearms are maintained in a reliable operating condition. All firearms should be cleaned after firing. Additional cleaning and maintenance regimes should be considered for firearms that are stored or carried in a high-humidity environment (i.e., rain, snow, heavy fog) to reduce the possibility of corrosion.

13.2.4 Licensee implementing procedures should establish that all firearms must be unloaded before cleaning. Unloading should be performed in an authorized area. Firearms cleaning procedures should include, but are not limited to, the following activities:

a. removing magazine or ammunition source (unloading of firearm);
b. inspecting the magazine well area of the weapon;
c. locking open the action of the weapon (lock slide to rear or bolt to rear) and opening the action mechanism to the rear;
d. inspecting the chamber to ensure that no ammunition is present;
e. disassembling the firearm consistent with the manufacturer's recommendations for standard operator maintenance;
f. using solvents, oils, and lubricants recommended by the manufacturer(s);
g. using cleaning tools that match the caliber of the firearm to avoid damage to the surface areas, barrel, and muzzle areas;

h. cleaning all areas of the firearm with a cloth and/or brush treated with a small amount of cleaning solvent consistent with the manufacturer's recommendations,
i. removing all traces of powder residue and fouling from the barrel of the firearm;
j. lubricating the firearm according to the manufacturer's specifications;
k. assembling the firearm consistent with the manufacturer's recommendations; and
l. conducting a function check for the operability of the assembled firearm.

13.2.5 Once cleaned, the exterior of the firearm should be wiped with an oily rag to remove surface fingerprints. The acid content in fingerprints can result in surface rusting. Spray-type oil solutions (e.g., mixtures that are both penetrating and lubricating in design) should never be applied to loaded firearms because of the potential for the oil to penetrate the primers and cartridges which may make them incapable of discharging.

### 13.3 Program Activity Documentation

Consistent with Section VI, paragraph G.3.(a)(3) of Appendix B to 10 CFR Part 73, the licensee's firearms maintenance program shall include program activity documentation. Acceptable program activity documentation includes the following:

13.3.1 Licensees should maintain and retain documentation of firearms testing and maintenance for each of its firearms employed consistent with Commission-approved security plans and in a manner similar to that for other security equipment that is relied on for effective implementation of the licensee's physical protection program.

13.3.2 The documentation should positively identify each weapon. The documentation should also identify any weapons that malfunction or are in an inoperable condition. The documentation should be detailed enough to determine the nature of the malfunction or inoperable condition, when it occurred, when the weapon was taken out of service, and demonstrate how the problem was resolved and by whom, and when the weapon was returned to service.

13.3.3 The licensee should consider retaining the firearms maintenance records for the life of the firearm to assist in evaluating the performance and dependability of the firearm in case of programmatic problems.

### 13.4 Weapons and Ammunition Control and Accountability

Consistent with Section VI, paragraph G.3.(a)(4) of Appendix B to 10 CFR Part 73, the licensee shall implement a system of accountability for all firearms and ammunition.

13.4.1 Firearms and ammunition should be stored in areas with access limited to personnel who are qualified to perform maintenance on or carry firearms.

13.4.2 Licensees should account for all in-service firearms and duty ammunition daily and periodically account for out-of-service firearms and additional ammunition. The phrase "account for" means to provide a satisfactory record or explanation of the location or disposition of each firearm and all ammunition through visual or physical verification.

13.4.3 Licensees should account for firearms that cannot be visually or physically accounted for because of their location (e.g., those that have been shipped offsite for maintenance or other reasons) by verifying the documentation for the disposition of the firearm.

13.4.4 Accountability for firearms that are stored in weapon safes or other tamper-proof containers, which are sealed with approved tamper-indicating devices (i.e., tamper seals), can be achieved by physically inspecting the integrity of the seal.

13.4.5 Licensees should account for all protective strategy ammunition once per shift. Protective strategy ammunition (the ammunition the licensee requires for the effective implementation of the site's protective strategy) could be stored in the following locations:

(a) on the bodies of individual response and supplemental force personnel (i.e., in pouches, belts, and vests);

(b) in pouches, belts, vests, or containers located in defensive posts or in other licensee-approved locations throughout the site; and

(c) in additional contingency weapons staged for use during a contingency event.

13.4.6 Visual or physical verification of sealed boxes, loaded magazines, or loose ammunition by licensee personnel assuming post responsibilities is acceptable for part of daily shift accountability. Licensees should consider placing a portion of additional ammunition in appropriate weapon(s) magazines. Ammunition should be readily available for armed personnel to resupply if necessary, during a contingency event.

## 13.5 Firearm and Ammunition Storage

Consistent with Section VI, paragraph G.3.(a)(5) of Appendix B to 10 CFR Part 73, the licensee's firearms maintenance program shall include the licensee's firearms storage requirements.

13.5.1 Licensees should consider storing weapons and ammunition in approved storage areas or containers that prevent tampering or unauthorized possession and offer a high degree of assurance of safety and reliability. Storage areas or containers should provide easy access for the authorized person(s) to retrieve the weapons and ammunition expeditiously.

13.5.2 The primary considerations for storage are that the weapon does not sustain any damage, particularly to its sights, and that performance is not adversely impacted. In assessing a weapons storage area or container, the licensee should consider the potential impact of temperature, moisture, and particles (i.e., dust and sand) on the weapon(s). The storage area or container should also prohibit unauthorized access to a weapon.

## 13.6 Records

As required by Section VI, paragraph H of 10 CFR Part 73, and consistent with the requirements of 10 CFR 73.55(q), the licensee must retain all reports, records, or other documentation required.

## 13.7 Authorized Simulation Weapons

Licensees should implement maintenance programs for their FATS and exercise simulation system equipment that are similar to their maintenance programs for actual firearms.

When a licensee uses FATS as the method for satisfying requirements, the licensee should test, maintain, and operate its FATS consistent with vendor or manufacturer recommendations and the method(s) outlined in site procedures. Manufacturer recommendations and specifications for FATS maintenance, testing, and calibration are important elements for ensuring the FATS performs as designed and maintains the capability to perform its intended function(s).

## 14. Audits and Reviews

Consistent with Section VI, paragraph I of Appendix B to 10 CFR Part 73, the licensee shall review the Commission-approved Training and Qualification plan consistent with the requirements of 10 CFR 73.55(m).

# D. IMPLEMENTATION

The NRC staff may use this regulatory guide as a reference in its regulatory processes, such as licensing, inspection, or enforcement. However, the NRC staff does not intend to use the guidance in this regulatory guide to support NRC staff actions in a manner that would constitute backfitting as that term is defined in 10 CFR 50.109, "Backfitting," and as described in NRC Management Directive 8.4, "Management of Backfitting, Forward Fitting, Issue Finality, and Information Requests," (Ref. 18), nor does the NRC staff intend to use the guidance to affect the issue finality of an approval under 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants." The staff also does not intend to use the guidance to support NRC staff actions in a manner that constitutes forward fitting as that term is defined and described in Management Directive 8.4. If a licensee believes that the NRC is using this regulatory guide in a manner inconsistent with the discussion in this Implementation section, then the licensee may file a backfitting or forward fitting appeal with the NRC in accordance with the process in Management Directive 8.4.

# GLOSSARY

**action** - functional parts of a firearm that move together to place a cartridge in the chamber or otherwise ready a cartridge for firing.

**alarm station operator** - a person responsible for, but not limited to, monitoring security systems, assessing alarms, initiating response to a security threat, and making notifications to both onsite and offsite support agencies consistent with site procedures

**armed security officer** - an armed member of the security organization who:

- is trained and qualified to perform duties and responsibilities involving the possession and use of assigned firearms.
- may or may not be designated to respond to a contingency event.
- has ready access to a contingency weapon, body armor, gas masks, and other equipment as appropriate to respond in effectively implementing their role in the protective strategy.

**armed responder** - an armed member of the security organization who:

- is trained and qualified consistent with the training and qualification plan.
- must be immediately available at all times inside the protected area to implement the protective strategy and is supported in this role by other onsite and offsite resources. "Immediately available" means having the ability to respond within the timelines required to effectively implement the site protective strategy.
- has the primary responsibility of responding to threats against the facility up to and including the DBT.
- may be assigned other duties that do not prevent them from effectively responding consistent with the protective strategy. They are not assigned any duties that would impede an effective response.
- is equipped with or has readily available (if at a stationary post) a contingency weapon.
- has ready access to body armor, gas mask, and other equipment as appropriate to assure an effective response. "Ready access" means that the responder is able to pick up the equipment inroute within required timelines.

**automatic** - a firearm using gas pressure or force of recoil and mechanical spring action for repeatedly performing the entire firing cycle (i.e., fire, unlock, extract, eject, cock, feed, chamber, and lock) with a single press of the trigger.

**barrel** - the part of the firearm, usually made from iron or steel, through which the projectile(s) pass(es) when the firearm is fired.

**barricade** - a linear structure used as an obstacle or as support during the firing of a firearm.

**bolt** - a metal cylinder or block that drives the cartridge into the chamber of a firearm, locks the breech, and usually contains the firing pin and extractor.

**bore** - the interior of the barrel, the diameter of which determines the caliber or gauge of the firearm.

**breech** - the part of the firearm to the rear of the bore that accepts ammunition.

**bullet** - the projectile that is expelled from a firearm when it is fired.

**caliber** - the diameter of the bore of a firearm or diameter of a bullet.

**cartridge** - a single piece of firearm ammunition consisting of casing, powder, primer, and projectile.

**chamber** - the part of the barrel's bore that holds the cartridge or a compartment in the cylinder of a revolver.

**charge** - to cause the action of a firearm to move, resulting in a cartridge being placed in the chamber and readied for firing.

**clear** - to ensure that a firearm has no cartridge in the chamber, cylinder, or loading mechanism and, if magazine fed, that the magazine is also removed.

**clip** - a device used to hold multiple cartridges together. It is used as an aid in loading firearms magazines or cylinders. It has no moving parts and is usually not retained in the firearm.

**CN gas (chloroacetophenone) -** a tear gas that is weaker than CS gas but lasts longer.

**close-quarter battle** - intensive combat situations at distances less than 21 feet, generally with multiple participants with firearms, other weapons, or hand-to-hand combat.

**contraband** - firearms, explosives, incendiary devices or other items that may be carried or concealed by personnel, packages, materials, or vehicles and could be used to commit radiological sabotage.

**cover** - protection from incoming projectiles.

**CS gas (chlorobenzylidenemalononitrile)** - a tear gas that is stronger than CN gas but wears off faster; can be deployed by grenades or cluster bombs; can cause skin burns and fatal pulmonary edema.

**cylinder** - the rotating chambers of a revolver that hold the cartridges.

**draw** - to bring out a firearm, usually a handgun, from a holster worn on the body and direct it toward a target.

**dry fire** - to manipulate a firearm and practice firing with no live cartridges or to use inert ammunition (dummy rounds).

**enhanced weapon –** any short-barreled shotgun, short-barreled rifle, or machine gun. Enhanced weapons do not include destructive devices as defined in 18 U.S.C. 921(a).

**fire** - to discharge a firearm.

**firearm** - a weapon from which a projectile(s) is discharged by gun powder, particularly small arms such as rifles or handguns.

**firearm course** - an orderly progression of manipulating and shooting a firearm through specified stages and strings designed to exercise and evaluate firearm manipulation and shooting skills.

**firearms-based FATS** – a firearms training simulator that uses actual firearms that: (1) are the same as those a licensee uses to implement its protective strategy; (2) are modified so they function safely with the simulator; and (3) remain capable of being readily restored to their original live-fire configurations within one minute.

**firearms training simulator (FATS)** - a commercial off-the-shelf system that simulates environments in which users can practice firearms-related skills without live ammunition; a firearms training simulator can be firearms- or non-firearms-based. Staff considers everything needed to create, control, or operate in the simulated environments, including the personnel, facility, components, equipment, and software to be part of the firearms training simulator system.

**force continuum (use of force continuum)** - a standard that provides individuals with guidelines as to how much force may be used against a resisting or combative subject in a given situation.

**gauge** - a measuring system used to determine the bore diameter of a shotgun barrel based upon the number of balls of bore diameter that can be produced from a pound of lead.

**grip** - (verb) to place one or more hands on a firearm to permit effective firing. (noun) The portion of a firearm designed for holding it in order to fire.

**hammer** - the part of a firearm that strikes the primer, firing pin, or percussion cap, causing the firearm to fire a projectile.

**handgun** - a firearm designed to be held and fired with one hand.

**immediate action** - simple, rapid motions or techniques taken by a shooter to correct basic stoppages

**independent spent fuel storage facility** - a complex designed and constructed for the interim storage of spent nuclear fuel; solid, reactor-related, greater than Class C waste; and other associated radioactive materials. A spent fuel storage facility may be considered independent, even if it is located on the site of another NRC-licensed facility.

**magazine** - a component in some types of firearms (occasionally a detachable metal box) in which cartridges are placed. The magazine contains a spring and a follower and is part of the mechanism by which cartridges are fed into the chamber.

**malfunction** - interruption of a firearm's cycle of operation because a part of the firearm breaks or fails to operate as designed or intended; a malfunction can be fixed only by an armorer or other qualified individual.

**mechanical offset** - the distance between the sight (i.e., aiming) and bore lines of a firearm; for rifles, this distance typically is between 1-4 inches. Mechanical offset is greatest at the muzzle of a firearm and decreases to nothing at the distance at which the firearm is zeroed.

**mock adversary force (MAF)** - a group of tactical operators to role-play as terrorist adversaries to facilitate rigorous performance testing of the licensee's protective strategy.

**muzzle** - the discharge end of a barrel.

**non-firearms-based FATS** - a firearms training simulator that functions only with inert, replica, or simulated firearms (i.e., weapons that not legally considered to be firearms).

**other items**—items that have an apparent primary use as a weapon (e.g., crossbow, brass knuckles, swords, nunchaku, etc.) or destructive devices as defined in 26 U.S.C. § 5845(f) intended for use in the commission of radiological sabotage. Other items do not include ordinary tools or materials routinely used in the operation and maintenance of a commercial nuclear power reactor facility that could potentially be used in a manner for which they are not intended.

**pistol** - a handgun with a chamber that is integral with the barrel.

**projectile** - a fired, projected object, such as a bullet or pellet having no capacity for self-propulsion, directed toward a nuclear power plant that could cause concern for the plant's continued operability, reliability, or personnel safety.

**quarterly** - should be scheduled at a nominal 13-week periodicity. Performance may be conducted up to four weeks before to four weeks after the scheduled date. The next scheduled date is 13 weeks from the originally scheduled date.

**range** - an area designated for conducting range activities, including firing lines and positions, firing lanes, maneuver areas, and a firearms-based FATS

**range activity** - training that prepares licensee security personnel to use and handle assigned firearms, ammunition, and associated equipment (e.g., weapons sighting systems, nonlethal weapons, obscurants, flares) required to implement a licensee's protective strategy

**red gun** - a training replica of a weapon (e.g., handgun, rifle, shotgun, etc.) that may be detailed to the look and feel of the real equipment.

**remedial action** - more time consuming and skilled techniques shooters apply during complex stoppages or after immediate actions prove ineffective

**remotely operated weapons system (ROWS)** - a weapon system that is operated from a remote location and typically includes a support structure and operator control station.

**response team leader (RTL)** - the individual responsible for directing designated members of the security force in effecting the protective strategy at the facility. The response team leader is designated by the protective strategy and identified in facility procedures.

**revolver** - a handgun with a cylinder of multiple chambers brought successively into line with the barrel and discharged by the same hammer.

**rifle** - a shoulder-fired firearm with a rifled barrel designed for single shot, semi-automatic, or fully automatic firing.

**round** - common term for a single cartridge.

**scope** - an optical instrument used to aid the human eye in sighting a firearm.

**semi-automatic** - a firearm using gas pressure or force of recoil and mechanical spring action to complete one cycle of the firing sequence (fire, unlock, extract, eject, cock, feed, chamber, lock) with a single pull of the trigger. The trigger must be released and re pressed to begin a second firing sequence.

**shot** - a projectile, such as a bullet or pellet, from a firearm. This term typically refers to small, round pellets fired from a shotgun.

**shotgun** - a smooth bore shoulder-fired firearm for firing single (slug) or multiple projectiles (pellets), usually at moderate distance.

**sight alignment** - correct positioning of the front sight within the center space of the rear sight. For firearms equipped with a scope, the scope must be aligned with the bore before shooting.

**sight picture** - correct alignment of the target with the correctly aligned sight(s) to ensure that a projectile strikes the target at the point of aim.

**Simunition®** - "non-lethal" firearms-based training systems which fire a water-soluble color-marking projectile or a blank cartridge; handguns and rifles can be converted to use Simunition®. Accuracy will range from approximately 25-feet for handguns with 9mm cartridges to 100-feet for rifles using 5.56mm cartridges. Protective equipment must be used in this training.

**slug** - an elongated projectile of bore diameter for a shotgun that may have a hollow base and spiral driving bands (rifling) on its surface.

**stage** - a segment of a firearms qualification course, which may consist of one or more strings using similar techniques at a specified distance.

**stoppage** - interruption of a firearm's cycle of operation, with all parts of the firearm remaining capable of functioning as designed or intended; stoppages are remedied by a shooter and do not require an armorer or qualified individual to fix them.

**string** - a segment of a stage in a firearms course, usually a continuous series of shots fired within a specified time limit.

**tampering** - deliberately damaging, disabling, or altering equipment necessary for safe shutdown or security equipment necessary for the protection of the facility in order to defeat their function and/or prevent them from operating.

**training cycle** - a period over which the continuing training program is conducted and evaluated (normally over a three-year period).

**zero** - to adjust a firearm's sighting mechanism(s) to cause a projectile to strike a target at the point of aim. This term may also refer to the number before 1.

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2. CFR, "Domestic Licensing of Production and Utilization Facilities," Part 50, Chapter 1, Title 10, "Energy."

3. CFR, "Licenses, Certifications, and Approvals for Nuclear Power Plants," Part 52, Title 10, "Energy."

4. NRC, Regulatory Guide 5.76, "Physical Protection Programs at Nuclear Power Reactors," Washington, DC

5. NRC, Regulatory Guide 5.81, "Target Set Identification and Development for Nuclear Power Reactors," Washington, DC.

6. NRC, "Nuclear Regulatory Commission International Policy Statement," Federal Register, Vol. 79, No. 132, July 10, 2014, pp. 39415-39418.

7. NRC, Management Directive (MD) 6.6, "Regulatory Guides," Washington, DC, May 2, 2016 (ADAMS Accession No. ML18073A170).

8. IAEA, Nuclear Security Series No. 13, "Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/255/Revision 5), IAEA, Vienna, Austria, 2011.[2]

9. International Atomic Energy Agency, "Experience in the Use of Systematic Approach to Training (SAT) for Nuclear Power Plant Personnel," IAEA-Tecdoc-1057, Vienna, Austria, 1998.

10. NRC, "Management of Backfitting, Forward Fitting, Issue Finality, and Information Requests," Management Directive 8.4.

11. Nuclear Energy Institute (NEI), NEI 03-12, "Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan, [and Independent Spent Fuel Installation Security Program]."[3]


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1 Publicly available documents from the U.S. Nuclear Regulatory Commission (NRC) are available electronically through the NRC Library on the NRC's public Web site at http://www.nrc.gov/reading-rm/doc-collections/. The documents can also be viewed on-line for free or printed for a fee in the NRC's Public Document Room (PDR) at 11555 Rockville Pike, Rockville, MD; the mailing address is USNRC PDR, Washington, DC 20555; telephone (301) 415-4737 or (800) 397-4209; fax (301) 415 3548; and e-mail pdr.resource@nrc.gov.

2 Copies of International Atomic Energy Agency (IAEA) documents may be obtained through their Web site: WWW.IAEA.Org/ or by writing the International Atomic Energy Agency, P.O. Box 100 Wagramer Strasse 5, A-1400 Vienna, Austria.

3 Publications from the Nuclear Energy Institute (NEI) are available at their Web site: http://www.nei.org/ or by contacting the headquarters at Nuclear Energy Institute, 1776 I Street NW, Washington DC 20006-3708, Phone: 202-739-800, Fax 202-785-4019.

12. Institute of Nuclear Power Operations, INPO-AP-921, "Principles of Training System Development," June 1997, Atlanta, GA.[4]

13. Lautenberg Amendment (1996) to the Gun Control Act [Public Law 104 208, 18 U.S.C. § 922(g)(9)].

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16. NRC, Regulatory Guide (RG) 5.74, "Managing the Safety/Security Interface," Washington, DC.

17. NRC, "Staff Position and Path Forward for Firearms Training Simulators," dated December 4, 2019 (ADAMS Accession No. ML19323E459)

18. NRC, "Management of Backfitting, Forward Fitting, Issue Finality, and Information Requests," Management Directive 8.4.

[4] Copies of Institute of Nuclear Power Operations (INPO) documents are only available by contacting the headquarters of Institute of Nuclear Power Operations, 700 Galleria Parkway, SE, Suite 100, Atlanta, GA 30339-5943

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10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," U.S. Nuclear Regulatory Commission, Washington, D.C.

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SFAQ-05-10, "Tactical Qualification Course of Fire."

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SFAQ-10-13, "Security Shift Supervisor."

SFAQ-12-03, "NEI 03-12, Revision 7 – Hostage Training & Qualification."

SFAQ-12-04, "NEI 03-12, Revision 7 – Watchperson Definition, Duty Position & Task Matrix."


[5] All NRC regulations listed herein are available electronically through the Electronic Reading Room on the NRC's public website, at http://www.nrc.gov/reading-rm/doc-collections/cfr/. Copies are also available for inspection or copying for a fee from the NRC's Public Document Room (PDR) at 11555 Rockville Pike, Rockville, Maryland; the mailing address is USNRC PDR, Washington, D.C. 20555; telephone (301) 415-4737 or (800) 397-4209; fax (301) 415-3548; and email PDR@nrc.gov.

**Additional Technical Basis Documents**

The documents listed in the attached bibliography were used to support the development and as a basis for elements of this RG.

(a) 29 CFR 1910.134, "Respiratory Protection,"

(b) 71130.03, "Contingency Response FOF Testing,"

(c) Colt Carbine and Rifle Armorer Manual,

(d) DOE Standard, DOE-STD-1047-2008, "Safety Functions and Other Features of Remotely Operated Weapon Systems (ROWS)," September 2008,

(e) Federal Law Enforcement Training Center, Firearms Training Lesson Plan, Annex F, "Special Shooting Situations,"

(f) Federal Law Enforcement Training Center, Firearms Training Lesson Plan, Annex D, "Observational Techniques,"

(g) Federal Law Enforcement Training Center, Firearms Training Lesson Plan, "Marksmanship Fundamentals,"

(h) International Atomic Energy Agency, IAEA-Tec Doc-1392, "Development of Instructors for Nuclear Power Plants Personnel Training," June 2004,

(i) Langevin Learning Services (instructor certification),

(j) Lesson learned from NRC security baseline inspection program (industry best practices),

(k) Marine Rifle Company/Platoon FMFM 6-4,

(l) National Rifle Association, "Law Enforcement Handgun/Shotgun Instructor Manual,"

(m) National Rifle Association, "Law Enforcement Patrol Rifle Instructor Manual,"

(n) National Institute of Justice Standard 0101.04, "Ballistic Resistance of Personal Body Armor,"

(o) Sig Sauer Armorer Certification Training Program,

(p) U.S. Department of the Army, FM 23-9, "Rifle Marksmanship,"

(q) U.S. Department of the Army, Pamphlet 385-63, "Range Safety,"

(r) U.S. Marine Corps, MCRP 3-01A, "Rifle Marksmanship,"

(s) U.S. Marine Corps, MCRP 3-01B, "Pistol Marksmanship."

(t) Department of Energy (DOE) Handbook, "Training Program Handbook: A Systematic Approach to Training" (DOE-HDBK-1078-94), October 25, 1995

(u) International Atomic Energy Agency (IAEA), "Analysis Phase of Systematic Approach to Training for Nuclear Plant Personnel" (IAEA-TECDOC-1170), Vienna, Austria, 2000

(v) U.S. Marine Corps, Individual Training Standard, 0300-M16-1003, Instructor Guide: "Corrective Action with a Service Rifle," dated April 2014

(w) U.S. Marine Corps Reference Publication, MCRP 8-10-B.2, "Rifle Marksmanship," dated May 2, 2016

(x) U.S. Marine Corps Reference Publication, MCRP 8-10-B.3, "Pistol Marksmanship," dated May 2, 2016

(y) U.S. Army Training Circular, 3-22.9, "Rifle and Carbine," dated May 13, 2016

(z) Eagle Gun Range Blog, "Shooting Fundamentals: Mechanical Offset," Andy Rutledge, dated June 12, 2016.

ATTACHMENT 1:

# Knowledge, Skills and Abilities Matrix

Licensees are not expected to have job position titles that are specifically commensurate with the job titles in this Attachment. This guidance applies to the knowledge, skills and abilities associated with job positions or duty functions within positions and, therefore, the guidance assumes no nexus to job title. Licensees are guided by the performance code definitions provided in Section C.1 item 7 of this Regulatory Guide. The minimum critical task(s) required for each duty position are identified in the most current revision of NEI 03-12, Appendix B, Critical Task Matrix.

| **Critical Tasks/Duty Functions/Site Specific Duty Functions**<br><br>* Frequency: A = Annual Requirement, not subject to change using the SAT process<br>Q = Quarterly<br>** Performance Method: M = Must Perform, not subject to change using the SAT process | **[Watchperson]** | **Armed Security Officer** | **Armed Responder and Armed Security Officer's with Armed** | **CAS/SAS Alarm Station Operator** | **Response Team Leader** | **Security Shift Supervisor** | **[ROWS Operator]** | **[Search Officer]** | **[Access Officer]** | **[Patrol Officer]** | **[Escort Officer]** | **Frequency*** | **Performance Method**** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1. Perform Critical Administrative Items:**<br>Perform administrative tasks associated with the conduct of security operations consistent with station procedures. | | | | | | | | | | | | | |
| • Identify the role of security personnel in supporting safe operation of the facility | [X] | X | X | X | X | X | [X] | [X] | [X] | [X] | [X] | | D |
| • Identify the 10 CFR 73.21 requirements for the protection of Safeguards Information | [X] | X | X | X | X | X | [X] | [X] | [X] | [X] | [X] | | D |
| • Identify security chain of command | [X] | X | X | X | X | X | [X] | [X] | [X] | [X] | [X] | | D |
| • Conduct shift turnover | | | | X | X | X | | | | | | | P/S/D |
| • Conduct post turnover | [X] | X | X | X | X | X | [X] | [X] | [X] | [X] | [X] | | P/S/D |
| • Prepare duty roster | | | | X | X | X | | | | | | | P/S/D |
| • Verify inventory of security keys | | X | X | X | X | X | | | | | | | P |
| • Verify inventory of security equipment | | X | X | X | X | X | [X] | | | | | | P |
| • Perform pre-job briefing | | | | X | X | X | | | | | | | P/S |
| • Inspect security posts | | X | X | X | X | X | | | | | | | P/D |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| • Issue vital area (VA) keys | | X | X | X | X | X | | | | | | | P/S/D |
| • Identify/perform reportability | | X | X | X | X | X | [X] | | | | | | P/S/D |
| • Change VA keys and cores/safeguards combinations | | [X] | | | | [X] | | | | | | | P/S |
| • Evaluate individuals for the symptoms, contributing factors, and effects of fatigue | | | | | X | X | | | | | | | P/S/D |
| • Perform emergency plan security positions | [X] | [X] | [X] | [X] | [X] | [X] | [X] | [X] | [X] | [X] | [X] | | P/D |
| • Complete annual station-specific training | [X] | X | X | X | X | X | X | X | X | X | X | A | M |
| **2. Perform Visitor Access Control:**<br>Verify identification, authorization for entry, appropriate badge and/or key card, and presence of an escort before allowing entry to the protected area (PA), consistent with site security plans and implementing procedures. | | | | | | | | | | | | | |
| • Verify identification of individuals authorized unescorted access and visitors | [X] | [X] | [X] | [X] | X | X | | | [X] | | [X] | A | M |
| • Verify that visitors are not on the denied access list | [X] | [X] | [X] | [X] | X | X | | | [X] | | [X] | A | M |
| • Identify access badges | [X] | [X] | [X] | [X] | X | X | | | [X] | | [X] | | D |
| • Issue visitor badges | [X] | [X] | [X] | [X] | X | X | | | [X] | | [X] | A | M |
| • Issue escort badge and escort instructions | [X] | [X] | [X] | [X] | X | X | | | [X] | | [X] | | S/D |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **3. Control Personnel Access to Protected and Vital Areas:** Verify identity and authorization of individual seeking ingress and permit or deny entry accordingly; communicate required logging information to the alarm station operator or record data, consistent with NRC requirements, NRC-approved site security plans, and site implementing procedures. | | | | | | | | | | | | | |
| • Control access to VA | | [X] | [X] | [X] | X | X | | | [X] | [X] | [X] | | S/D |
| • Control access to PA | | [X] | [X] | [X] | X | X | | | [X] | [X] | [X] | | S/D |
| • Control access to remote portals | [X] | [X] | [X] | [X] | X | X | | | [X] | [X] | [X] | | S/D |
| • Control PA/VA access during a declared emergency | | [X] | [X] | [X] | X | X | | | [X] | [X] | | | D |
| • Test/operation of hand geometry/iris scan | [X] | [X] | [X] | [X] | X | X | | | [X] | [X] | | A | M |
| • Respond to anti-pass back alarm | [X] | [X] | [X] | X | X | X | | | [X] | [X] | | | S/D |
| **4. Conduct Personnel Searches:** Using special-purpose detectors, by means of visual observation, by hands-on techniques, or by combinations of these methods, complete search to detect or rule out the presence of unauthorized firearms, explosives and incendiary devices, consistent with NRC requirements, NRC-approved site security plans, and site implementing procedures, including excepted situations. | | | | | | | | | | | | | |
| • Use and test hand-held metal detector | [X] | [X] | [X] | [X] | X | X | | X | | | | A | M |
| • Monitor/operate walk-through metal detector | [X] | [X] | [X] | [X] | X | X | | X | | | | A | M |
| • Monitor/operate explosive detector | [X] | [X] | [X] | [X] | X | X | | X | | | | A | M |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| • Conduct hands-on search of personnel | [X] | [X] | [X] | [X] | X | X | | X | | | | A | M |
| • Recognize/detect contraband | [X] | [X] | [X] | [X] | X | X | | X | | | | A | M |
| • React to detection of contraband | [X] | [X] | [X] | [X] | X | X | | X | | | | A | S/D |
| • Test access control equipment | [X] | [X] | [X] | [X] | X | X | | X | | | | A | M |
| • Operate portable explosive detector | [X] | [X] | [X] | [X] | X | X | | X | | | | A | M |
| **5. Perform Material Search:**<br>Complete package and material search requirements consistent with NRC requirements, NRC-approved site security plans, and site implementing procedures, including excepted situations. | | | | | | | | | | | | | |
| • Search/identify and properly handle cargo/package | [X] | [X] | [X] | [X] | X | X | | X | | | | A | M |
| • Recognize/detect contraband | [X] | [X] | [X] | [X] | X | X | | X | | | | A | M |
| • Monitor/operate X-ray machine | [X] | [X] | [X] | [X] | X | X | | X | | | | A | M |
| • Conduct package search | [X] | [X] | [X] | [X] | X | X | | X | | | | A | M |
| • React to detection of contraband | [X] | [X] | [X] | [X] | X | X | | X | | | | A | S/D |
| • React to detection of radioactive material | [X] | [X] | [X] | [X] | X | X | | X | | | | | S/D |
| **6. Perform Vehicle Search:**<br>Verify/obtain access authorization; complete search requirements; prepare appropriate forms on vehicle; ensure driver is searched; determine need for escort and complete vehicle entry requirements, consistent with NRC requirements, NRC-approved site security plans, and site implementing procedures, including excepted situations. | | | | | | | | | | | | | |
| • Search vehicle | [X] | [X] | [X] | [X] | X | X | | X | | | | A | M |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| • Operate explosive detector (e.g., Itemizer) | [X] | [X] | [X] | [X] | X | X | | X | | | | A | M |
| • Control vehicle access to PA/owner-controlled area (OCA) | | [X] | [X] | [X] | X | X | | X | | | | | S/D |
| • Recognize/detect contraband | [X] | [X] | [X] | [X] | X | X | | X | | | | A | M |
| • React to detection of contraband | [X] | [X] | [X] | [X] | X | X | | X | | | | A | S/D |
| • React to discovery of radioactive material | [X] | [X] | [X] | [X] | X | X | | X | | | | | S/D |
| • Log vehicles into and out of the PA | [X] | [X] | [X] | [X] | X | X | | X | | | | | P/D |
| **7. Perform Vehicle and Material Escort Functions:** Demonstrate the ability to escort a vehicle and any material, to immobilize a vehicle if left unattended, and make reports, consistent with NRC requirements, NRC-approved site security plans, and site implementing procedures. | | | | | | | | | | | | | |
| • Escort/disable vehicles | | [X] | [X] | [X] | [X] | [X] | | | | | X | | S/D |
| • Escort vehicles with hazardous material | | [X] | [X] | [X] | [X] | [X] | | | | | X | | S/D |
| • Escort excepted material | | [X] | [X] | [X] | X | X | | | | | X | | S/D |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **8. Conduct Security Patrols:**<br>Patrol and inspect assigned area to include PA, VA, and vehicle barriers and observe area of responsibility for suspicious events, obvious indications of tampering, or unauthorized persons, vehicles, materials, or activities, consistent with station procedures. Make or document appropriate reports in response to alarms and investigations, consistent with NRC requirements, NRC-approved site security plans, and site implementing procedures. | | | | | | | | | | | | | |
| • Conduct OCA/PA/VA patrol | | X | X | X | X | X | | | | X | | | P/D |
| • Identify PA and OCA barrier characteristics | [X] | X | X | X | X | X | | | | X | | | D |
| • Inspect active/passive vehicle barriers | | X | X | X | X | X | | | | X | | | P/D |
| • Inspect gates/locks/access portals and intrusion detection system | | X | X | X | X | X | | | | X | | | P/D |
| • Observe employees/visitors for suspicious behavior | [X] | X | X | X | X | X | | | | X | | | D |
| • Check for obvious indications of tampering during rounds | | X | X | | | | | | | X | | | D |
| • Respond to confirmed tampering events | | X | X | | | | | | | X | | | D |
| **9. Conduct Security Communications:**<br>Demonstrate proper operation techniques to transmit and receive messages, consistent with NRC requirements, NRC-approved site security plans, and site implementing procedures. | | | | | | | | | | | | | |
| • Establish radio communications | [X] | X | X | X | X | X | [X] | [X] | [X] | [X] | [X] | A | M |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| • Establish alternate communications | [X] | X | X | X | X | X | [X] | [X] | [X] | [X] | [X] | A | M |
| • Identify security command and control communication structures during normal and contingency operations | [X] | X | X | X | X | X | [X] | [X] | [X] | [X] | [X] | | D |
| • Understand in-plant areas where communications are difficult or non-existent | [X] | X | X | X | X | X | | | | X | [X] | A | M |
| • Establish alternate communications where communications are difficult or non-existent | [X] | X | X | X | X | X | | | | X | [X] | A | M |
| • Demonstrate an ability to establish alternate communication of primary unavailable | [X] | X | X | X | X | X | | | | | | | |
| **10. Communicate with Duress System:**<br>Determine appropriate conditions and initiate duress alarm or communications signal and respond to a duress alarm, consistent with NRC requirements, NRC-approved site security plans, and site implementing procedures. | | | | | | | | | | | | | |
| • Use duress alarm(s) | [X] | X | X | X | X | X | [X] | [X] | [X] | [X] | [X] | | P/S/D |
| • Initiate/receive/act on duress alarms | [X] | X | X | X | X | X | [X] | [X] | [X] | [X] | [X] | | S/D |
| **11. Operate Perimeter Security Barriers:**<br>Identify perimeter barriers and operate them, consistent with NRC requirements, NRC-approved site security plans, and site implementing procedures. | | | | | | | | | | | | | |
| • Demonstrate operation of active vehicle barrier(s) | | X | X | X | X | X | | | [X] | | | | P/S |
| • Demonstrate motor-operated gate operation | | X | X | X | X | X | | | [X] | | | | P/S |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **12. Test Intrusion Detection Equipment and Special-Purpose Detectors:**<br>Demonstrate the ability to properly test intrusion detection equipment and/or special-purpose detectors using appropriate test methods and test devices, consistent with NRC requirements, NRC-approved site security plans, and site implementing procedures. | | | | | | | | | | | | | |
| • Test intrusion detection system | [X] | [X] | [X] | X | X | X | | | [X] | | | | P/S |
| • Test special-purpose detection system | [X] | [X] | [X] | X | X | X | | | [X] | | | | P/S |
| **13. Provide Compensatory Measures:**<br>Locate and describe post locations, areas of responsibility, timing of actions and communication requirements for each assigned posting, consistent with NRC requirements, NRC-approved site security plans, and site implementing procedures. | | | | | | | | | | | | | |
| • React to loss of security lighting | | X | X | X | X | X | [X] | [X] | [X] | [X] | [X] | | S/D |
| • React to loss of security computer | | X | X | X | X | X | [X] | [X] | [X] | [X] | [X] | | S/D |
| • React to loss of communications | | X | X | X | X | X | [X] | [X] | [X] | [X] | [X] | | S/D |
| • React to loss of intrusion detection | | X | X | X | X | X | [X] | [X] | [X] | [X] | [X] | | S/D |
| • React to loss of closed-circuit television | | X | X | X | X | X | [X] | [X] | [X] | [X] | [X] | | S/D |
| • React to loss of PA/VA barrier | | X | X | X | X | X | [X] | [X] | [X] | [X] | [X] | | S/D |
| • React to loss of vehicle barrier | | X | X | X | X | X | [X] | [X] | [X] | [X] | [X] | | S/D |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **14. Conduct Area Searches:**<br>Demonstrate appropriate search techniques to recognize and properly respond upon discovery of contraband and prohibited items, consistent with NRC requirements, NRC-approved site security plans, and site implementing procedures. | | | | | | | | | | | | | |
| • Search OCA, PA, and VA | [X] | X | X | X | X | X | | X | [X] | [X] | [X] | | S/D |
| • Recognize contraband and prohibited items | [X] | X | X | X | X | X | | X | [X] | [X] | [X] | A | M |
| • React to discovery of contraband and prohibited items | [X] | X | X | X | X | X | | X | [X] | [X] | [X] | | P/S/D |
| **15. Respond to Protected and Vital Area Alarms:**<br>On dispatch from the alarm station operator, proceed to the area in alarm within a specified timeframe and investigate the cause of alarm by using proper assessment procedures, and report to the alarm station operator, consistent with NRC requirements, NRC-approved site security plans, and site implementing procedures. | | | | | | | | | | | | | |
| • Respond to alarms | | X | X | X | X | X | | | | [X] | | | P/S/D |
| **16. Determine Amount of Force Required to Prevent an Unauthorized Act:**<br>Demonstrate understanding of situation in which the use of force is authorized and demonstrate the appropriate degree and type of force necessary, consistent with NRC requirements, NRC-approved site security plans, and site implementing procedures. | | | | | | | | | | | | | |
| • Conduct arrest/detention | | X | X | X | X | X | [X] | | | [X] | | | S/D |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| • Determine if a legal search may be performed | | X | X | X | X | X | [X] | | | [X] | | | |
| • Determine if a legal arrest may be made | | X | X | X | X | X | [X] | | | [X] | | | |
| • Field search an arrested person | | X | X | X | X | X | [X] | | | [X] | | | S/D |
| • Determine when the use of nonlethal and lethal force is justified (force continuum) | | X | X | X | X | X | [X] | | | | | | D |
| • Identify situations when search and seizure by private security personnel are legal | | X | X | X | X | X | [X] | | | [X] | | | D |
| • Handcuff and search a suspect | | X | X | X | X | X | [X] | | | [X] | | | P/S/D |
| **17. Perform Central and Secondary Alarm Station Functions:**<br>Demonstrate routine alarm station functions and contingency response procedures, including communications, for alarm stations, consistent with NRC requirements, NRC-approved site security plans, and site implementing procedures. | | | | | | | | | | | | | |
| • Respond to alarm | | | | X | X | X | [X] | | | | | A | M |
| • Encode and/or activate key card badges | | | | X | X | X | | | | | | A | M |
| • Log vehicles into and out of the PA | | | | X | X | X | | | | | | | P/D |
| • Initiate and monitor patrols | | | | X | X | X | | | | | | | P/D |
| • Log on/log off security computer | | | | X | X | X | | | | | | A | S |
| • Operate security computer system | | | | X | X | X | | | | | | A | M |
| • Run required reports | | | | X | X | X | | | | | | A | M |
| • Identify actions upon loss of intrusion detection system | | | | X | X | X | | | | | | | P/D |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| • Monitor personnel working in the isolation zone | | | | X | X | X | [X] | | | | | | P/D |
| **18. Operate the Base Station Radio and Security Communications Equipment:**<br>Select the proper communications equipment on the appropriate frequency as required, operate equipment by using correct communications procedures, contact fixed posts, patrols, responders, and LLEA recording the check, consistent with NRC requirements, NRC-approved site security plans, and site implementing procedures. | | | | | | | | | | | | | |
| • Identify available LLEA communication channels | | | | X | X | X | | | | | | | D |
| • Contact LLEA (primary and alternate) | | | | X | X | X | | | | | | | P/S/D |
| • Use emergency call list | | | | X | X | X | | | | | | | D |
| • Monitor/operate communication systems | | | | X | X | X | | | | | | A | M |
| **19. Operate and Monitor Access Control, Observation, Detection and Assessment Equipment:**<br>Operate and monitor access control, observation, detection, and assessment systems to verify operability, acknowledge any alarm indication and initiate response within a specified timeframe, annotate appropriate records and complete other activities, consistent with NRC requirements, NRC-approved site security plans, and site implementing procedures. | | | | | | | | | | | | | |
| • Operate card access system | | | | X | X | X | | | | | | A | M |
| • Change status and monitor zones | | | | X | X | X | | | | | | A | S |

| **Critical Tasks/Duty Functions/Site Specific Duty Functions**<br><br>* Frequency: A = Annual Requirement, not subject to change using the SAT process<br>Q = Quarterly<br>** Performance Method: M = Must Perform, not subject to change using the SAT process | **[Watchperson]** | **Armed Security Officer** | **Armed Responder and Armed Security Officer's with Armed** | **CAS/SAS Alarm Station Operator** | **Response Team Leader** | **Security Shift Supervisor** | **[ROWS Operator]** | **[Search Officer]** | **[Access Officer]** | **[Patrol Officer]** | **[Escort Officer]** | **Frequency*** | **Performance Method**** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| • Activate/deactivate alarm point | | | | X | X | X | | | | | | A | S |
| • Respond to system errors | | | | X | X | X | | | | | | | P/D |
| • Test intrusion detection system | | | | X | X | X | | | | | | | P/D |
| • Monitor and respond to loss of power alarm(s) (e.g., uninterrupted power supply, backup, secondary) | | | | X | X | X | | | | | | | P/D |
| • Operate and test video cassette recorder | | | | X | X | X | | | | | | A | M |
| • Monitor/control cameras | | | | X | X | X | [X] | | | | | A | M |
| • Operate video capture | | | | X | X | X | | | | | | A | M |
| • Identify actions upon loss of video assessment system | | | | X | X | X | [X] | | | | | | P/D |
| **20. Respond to Contingency Events and Execute Defensive Strategy:**<br>Within a specified timeframe, respond to contingency events as directed or required by communicating with alarm station(s), using contingency equipment as directed, observing/reporting information; and correctly implementing supervisory directions and proper tactics, consistent with NRC requirements, NRC-approved site security plans, and site implementing procedures. | | | | | | | | | | | | | |
| • Identify defensive positions | | | X | X | X | X | [X] | | | | | | D |
| • Identify targets and target sets | | | X | X | X | X | [X] | | | | | | D |
| • Identify offsite law enforcement response | [X] | X | X | X | X | X | | | | | | | D |
| • Identify tactics and force that an adversary group might use to achieve its objectives | | | X | X | X | X | [X] | | | | | | D |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| • Identify response force deployment, tactical movement, withdrawal, and use of support fire | | | X | X | X | X | [X] | | | | | | D |
| • Identify integrated response plan with LLEA and state and federal resources | | | X | X | X | X | | | | | | | D |
| • Identify response timelines | | | X | X | X | X | [X] | | | | | | D |
| • Conduct/report tactical observations | [X] | | X | X | X | X | [X] | [X] | [X] | [X] | [X] | | D |
| • Identify safeguards contingency threat situations | | X | X | X | X | X | [X] | [X] | [X] | [X] | [X] | | D |
| • Identify/react to changes in threat level | | X | X | X | X | X | [X] | [X] | [X] | [X] | [X] | | D |
| • Participate in quarterly tactical drills | | | X | X | X | X | [X] | | | [X] | | Q | M |
| • Participate in annual force-on-force exercise | | | X | X | X | X | [X] | | | [X] | | A | M |
| **21. Direct Response Team Activities:**<br>Within a specified timeframe, implement security response to safeguards contingency events by instructing, directing, deploying, and coordinating individuals and teams, consistent with NRC requirements, NRC-approved site security plans, and site implementing procedures. | | | | | | | | | | | | | |
| • Coordinate response team | | | | X | X | X | | | | | | | S/D |
| • Redirect team to respond to threat | | | | X | X | X | | | | | | | S/D |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **22. Comply with Physical Fitness Performance Requirements:**<br>Demonstrate the level of physical fitness necessary to perform assigned duties and responsibilities, consistent with NRC requirements, NRC-approved site security plans, and site implementing procedures. | | | | | | | | | | | | | |
| • Demonstrate strength, endurance, and agility required to perform the assigned security-related duties | | X | X | X | X | X | [X] | | | [X] | | A | M |
| **23. React to Bomb, Hostage, and Civil Disturbance Situations:**<br>Demonstrate the ability to execute station procedures and respond correctly to a potential bomb threat, hostage situation, or civil disturbance near the facility, consistent with NRC requirements, NRC-approved site security plans, and site implementing procedures. | | | | | | | | | | | | | |
| • Execute mob and crowd control formations | | X | X | X | X | X | | [X] | [X] | [X] | [X] | | S/D |
| • Don/use riot protective equipment | | X | X | X | X | X | [X] | [X] | [X] | [X] | [X] | A | M |
| • Receive/react to a bomb/attack/extortion threat | [X] | X | X | X | X | X | [X] | [X] | [X] | [X] | [X] | | S/D |
| • React to a hostage situation | | X | X | X | X | X | [X] | [X] | [X] | [X] | [X] | | D |
| • React to civil disturbance situation | | X | X | X | X | X | [X] | [X] | [X] | [X] | [X] | | D |
| • Respond to a hostage or duress situation | [X] | X | X | X | X | X | [X] | [X] | [X] | [X] | [X] | A | D |
| • Conduct an investigation and prepare a report | | | | X | X | X | [X] | | | | | A | M |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **24. Perform Nonlethal Defense Measures:**<br>Demonstrate proper use of nonlethal defensive measures, consistent with NRC requirements, NRC-approved site security plans, and site implementing procedures. | | | | | | | | | | | | | |
| • Demonstrate the use of chemical agent | | X | X | X | X | X | | [X] | [X] | [X] | [X] | A | M |
| • Demonstrate CS/CN smoke grenades | | X | X | X | X | X | | | | | | A | M |
| • Demonstrate 37-millimeter gas launcher | | X | X | X | X | X | | | | | | A | M |
| • Use shotgun as a gas launcher | | X | X | X | X | X | | | | | | A | M |
| • Demonstrate the use of baton | | X | X | X | X | X | | | | | | A | M |
| • Conduct unarmed self-defense | | X | X | X | X | X | [X] | [X] | [X] | [X] | [X] | A | M |
| **25. Demonstrate Proficiency with Handgun:**<br>Satisfactorily achieve basic and advanced weapons qualification to demonstrate tactical use of assigned weapon in support of the defensive strategy, consistent with NRC requirements, NRC-approved site security plans, and site implementing procedures. | | | | | | | | | | | | | |
| • Engage target with handgun | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Clean/inspect/maintain handgun | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Load/clear stoppage/unload/reload handgun | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate proper firearms handling | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate weak-hand shooting using handgun | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate use of clearing trap | | X | X | [X] | X | X | [X] | | | | | A | M |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| • Demonstrate proficiency under simulated tactical situation | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate principles of good marksmanship and weapons safety | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate the ability to transition from one firearm type to another | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate the proper use of cover and concealment | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Perform annual daylight Appendix B firearms qualification | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Perform annual night fire qualification with the handgun in conditions that reasonably approximate expected loss of lighting conditions that would occur because of loss of offsite power | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate the ability to load, unload, and clear all assigned weapons in conditions that reasonably approximate expected loss of lighting conditions | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate combined use of handguns and shoulder-fired weapons | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate ability to perform under stress and physical demands | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate proper cover and concealment tactics while engaging multiple targets, moving targets, and decision-making targets | | X | X | [X] | X | X | [X] | | | | | A | M |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| • Demonstrate the ability to recover from simulated weapon stoppages and malfunctions and safe handling of firearms simulated as appropriate | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate firing at multiple targets, loading, and reloading while wearing a gas mask | | X | X | [X] | X | X | [X] | | | | | A | M |
| **26. Demonstrate Proficiency with 12-Gauge Shotgun:** Satisfactorily achieve basic and advanced weapons qualification to demonstrate tactical use of assigned weapon in support of the defensive strategy, consistent with NRC requirements, NRC-approved site security plans, and site implementing procedures. | | | | | | | | | | | | | |
| • Engage target with shotgun | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Clean/inspect/maintain shotgun | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Load/clear stoppage/unload/reload shotgun | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate use of clearing trap | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate proper firearms handling | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate proficiency under simulated tactical situation | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate principles of good marksmanship and weapons safety | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Engage potential targets when obstacles such as smoke, fencing, doors, and walls are encountered during a contingency event | | X | X | [X] | X | X | [X] | | | | | A | M |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| • Demonstrate the ability to transition from one firearm type to another | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate the ability to recover from simulated weapons stoppages and malfunctions (e.g., dummy rounds) | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate the proper use of cover and concealment | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Perform annual daylight firearms qualification | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Perform annual night fire qualification with the shotgun in conditions that reasonably approximate expected loss of lighting conditions that would occur because of loss of offsite power | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate the ability to load, unload, and clear all assigned weapons in conditions that reasonably approximate expected loss of lighting conditions | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate combined use of handguns and shoulder-fired weapons | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate firing from a reasonable and representative facsimile of defensive positions, elevations, and distances | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate ability to perform under stress and physical demands | | X | X | [X] | X | X | [X] | | | | | A | M |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| • Demonstrate proper cover and concealment tactics while engaging multiple targets, moving targets, and decision-making targets | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate the ability to transition from one firearm type to another | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate firing at multiple targets, loading, and reloading while wearing a gas mask | | X | X | [X] | X | X | [X] | | | | | A | M |
| **27. Demonstrate Proficiency in Use of Semi-automatic Rifle:** Satisfactorily achieve basic and advanced weapons qualification to demonstrate tactical use of assigned weapon in support of the defensive strategy, consistent with NRC requirements, NRC-approved site security plans, and site implementing procedures. | | | | | | | | | | | | | |
| • Engage target with rifle | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Clean/inspect/maintain rifle | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Load/clear stoppage/unload/reload rifle | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate use of clearing trap | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate proper firearms handling | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate proficiency under simulated tactical situation | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate principles of good marksmanship and weapons safety | | X | X | [X] | X | X | [X] | | | | | A | M |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| • Engage potential targets when obstacles such as smoke, fencing, doors, and walls are encountered during a contingency event | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate the ability to transition from one firearm type to another | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate the ability to recover from simulated weapons stoppages and malfunctions (e.g., dummy rounds) | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate the proper use of cover and concealment | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Perform annual daylight Appendix B firearms qualification | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Perform annual night fire qualification with rifle in conditions that reasonably approximate expected loss of lighting conditions that would occur because of loss of offsite power | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate the ability to load, unload, and clear all assigned weapons in conditions that reasonably approximate expected loss of lighting conditions | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate combined use of handguns and shoulder-fired weapons | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate firing from a reasonable and representative facsimile of defensive positions, elevations, and distances | | X | X | [X] | X | X | [X] | | | | | A | M |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| • Demonstrate ability to perform under stress and physical demands | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate proper cover and concealment tactics while engaging multiple targets, moving targets, and decision-making targets | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate the ability to transition from one firearm type to another | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate firing at multiple targets, loading, and reloading while wearing a gas mask | | X | X | [X] | X | X | [X] | | | | | A | M |
| **28. Demonstrate Use of Protective Equipment:** Demonstrate proper donning and use of protective response equipment, consistent with NRC requirements, NRC-approved site security plans, and site implementing procedures. | | | | | | | | | | | | | |
| • Inspect/use protective equipment | | X | X | [X] | X | X | [X] | | | | | A | M |
| • Demonstrate use of gas mask | | X | X | [X] | X | X | [X] | | | | | A | M |
| **29. Demonstrate proficiency and use of ROWS** | | | | | | | | | | | | | |
| • Demonstrate proper ROWS operation, maintenance and safety consistent with vendor requirements and recommendations | | | | | X | X | X | | | | | A | M |
| • Demonstrate proficiency under simulated tactical situation | | | | | X | X | X | | | | | A | M |
| • Demonstrate principles of good marksmanship and weapons safety | | | | | X | X | X | | | | | A | M |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| • Engage potential targets when obstacles such as smoke and/or barriers/shields are encountered during a contingency event | | | | | X | X | X | | | | | A | M |
| • Demonstrate the ability to recover from simulated weapons stoppages and malfunctions | | | | | X | X | X | | | | | A | M |
| • Demonstrate functional and operational understanding of safety/security interface related to fields of fire | | | | | X | X | X | | | | | | |
| **30. Demonstrate proficiency of [enhanced/other weapons]** | | | | | | | | | | | | | |
| • Engage target with [enhanced/other weapons] | | [X] | [X] | | [X] | [X] | | | | | | A | M |
| • Clean/inspect/maintain [enhanced/other weapons] | | [X] | [X] | | [X] | [X] | | | | | | A | M |
| • Load/clear stoppage/unload/reload [enhanced/other weapons] | | [X] | [X] | | [X] | [X] | | | | | | A | M |
| • Demonstrate use of clearing trap | | [X] | [X] | | [X] | [X] | | | | | | A | M |
| • Demonstrate proper firearms handling | | [X] | [X] | | [X] | [X] | | | | | | A | M |
| • Demonstrate proficiency under simulated tactical situation | | [X] | [X] | | [X] | [X] | | | | | | A | M |
| • Demonstrate principles of good marksmanship and weapons safety | | [X] | [X] | | [X] | [X] | | | | | | A | M |
| • Engage potential targets when obstacles such as smoke, fencing, doors, and walls are encountered during a contingency event | | [X] | [X] | | [X] | [X] | | | | | | A | M |
| • Demonstrate the ability to transition from one firearm type to another | | [X] | [X] | | [X] | [X] | | | | | | A | M |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| • Demonstrate the ability to recover from simulated weapons stoppages and malfunctions (e.g., dummy rounds) | | [X] | [X] | | [X] | [X] | | | | | | A | M |
| • Demonstrate the proper use of cover and concealment | | [X] | [X] | | [X] | [X] | | | | | | A | M |
| • Perform annual daylight Appendix B firearms qualification | | [X] | [X] | | [X] | [X] | | | | | | A | M |
| • Perform annual night fire qualification with [enhanced/other weapons] in conditions that reasonably approximate expected loss of lighting conditions that would occur because of loss of offsite power | | [X] | [X] | | [X] | [X] | | | | | | A | M |
| • Demonstrate the ability to load, unload, and clear all assigned weapons in conditions that reasonably approximate expected loss of lighting conditions | | [X] | [X] | | [X] | [X] | | | | | | A | M |
| • Demonstrate combined use of handguns and shoulder-fired weapons | | [X] | [X] | | [X] | [X] | | | | | | A | M |
| • Demonstrate firing from a reasonable and representative facsimile of defensive positions, elevations, and distances | | [X] | [X] | | [X] | [X] | | | | | | A | M |
| • Demonstrate ability to perform under stress and physical demands | | [X] | [X] | | [X] | [X] | | | | | | A | M |
| • Demonstrate proper cover and concealment tactics while engaging multiple targets, moving targets, and decision-making targets | | [X] | [X] | | [X] | [X] | | | | | | A | M |

| **Critical Tasks/Duty Functions/Site Specific Duty Functions**<br><br>* Frequency: A = Annual Requirement, not subject to change using the SAT process<br>Q = Quarterly<br>** Performance Method: M = Must Perform, not subject to change using the SAT process | **[Watchperson]** | **Armed Security Officer** | **Armed Responder and Armed Security Officer's with Armed** | **CAS/SAS Alarm Station Operator** | **Response Team Leader** | **Security Shift Supervisor** | **[ROWS Operator]** | **[Search Officer]** | **[Access Officer]** | **[Patrol Officer]** | **[Escort Officer]** | **Frequency*** | **Performance Method**** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| • Demonstrate the ability to transition from one firearm type to another | | [X] | [X] | | [X] | [X] | | | | | | A | M |
| • Demonstrate firing at multiple targets, loading, and reloading while wearing a gas mask | | [X] | [X] | | [X] | [X] | | | | | | A | M |
| • Demonstrate functional and operational understanding of the safety/security interface (fields of fire and destructive capability) | | [X] | [X] | | [X] | [X] | | | | | | | |