
Acceptance Criteria for the Evaluation of Category I Fuel Cycle Facility Physical Security Plans

U.S. Nuclear Regulatory Commission

Office of Nuclear Material Safety and Safeguards

P. A. Dwyer



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ABSTRACT

This NUREG document presents criteria developed from U.S. Nuclear Regulatory Commission regulations for the evaluation of physical security plans submitted by Category I fuel facility licensees. Category I refers to those licensees who use or possess a formula quantity of strategic special nuclear material.

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1. INTRODUCTION

This document is intended to be used as a reference manual in evaluating the acceptability of physical security plans submitted by U.S. Nuclear Regulatory Commission (NRC) licensees who possess or use formula quantities of strategic special nuclear material at fixed sites. The document is composed of criteria that a licensee should consider in the development of physical security plans designed to meet NRC physical security regulations. The criteria are presented in a format suitable for security plan development. The source for each criterion is listed with each element.

The structure of the criteria in this document follows the structure of §73.46 of Title 10 of the Code of Federal Regulations. The content of §73.46 describes an example physical security system that meets the performance capability requirements of §73.45. Measures required by these regulations to protect against theft of strategic special nuclear material are also considered to provide protection against radiological sabotage.

A licensee should consult with the NRC physical security plan reviewer for guidance on needed physical protection measures for long-term, site-specific, unique situations not treated by this NUREG (e.g. decommissioning activities). Typically, licensees' commitments for physical protection measures imposed during these situations may be documented in an appendix to the physical security plan.

2. GENERAL PERFORMANCE OBJECTIVES

- §73.20(a) The security plan must commit the licensee to establish and maintain or make arrangements for a physical protection system which will have as its objective to provide high assurance that activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to the public health and safety.
- §73.20(a) The security plan must commit the licensee to design a physical protection system to protect against the design basis threats as described in section 73.1(a) of Title 10 of the Code of Federal Regulations.
- §73.20(b)(1) The security plan must commit the licensee to establish and maintain, or arrange for, a physical protection system which provides the performance capabilities outlined in section 73.45 of Title 10 of the Code of Federal Regulations. These performance capabilities are:
- (1) Detect attempts to gain unauthorized access or introduce unauthorized material into material access areas and vital areas.
 - (2) Permit only authorized activities and conditions within protected areas, material access areas, and vital areas.
 - (3) Permit only authorized placement and movement of strategic special nuclear material within material access areas.
 - (4) Permit removal of only authorized and confirmed forms and amounts of strategic special nuclear material from material access areas.
 - (5) Provide for authorized access and assure detection of and response to unauthorized penetrations of the protected area.
 - (6) Provide a response capability to assure that the above capabilities are achieved and that adversary forces will be engaged and impeded until offsite assistance forces arrive.
- §73.20(b)(2) The security plan must commit the licensee to design a physical protection system with sufficient redundancy and diversity to assure maintenance of the performance capabilities described above.
- §73.20(b)(3) The security plan must commit the licensee to include within the physical protection program a testing and maintenance program to assure control over all activities and devices affecting the effectiveness, reliability, and availability of the physical protection system, including a demonstration that any defects of such activities and devices will be promptly detected and corrected for the total period of time they are required as part of the physical protection system.

3. DESIGN BASIS THREAT

§73.1

The security plan must describe a safeguards system designed to protect against the following design basis threat: Theft or diversion of formula quantities of strategic special nuclear material.

- (1) A determined, violent, external assault, attack by stealth, or deceptive actions by a small group with the following attributes, assistance, and equipment:
 - (a) Well-trained including military training and skills and dedicated individuals;
 - (b) Inside assistance that may include a knowledgeable individual who attempts to participate in a passive role (e.g., provide information), an active role (e.g., facilitate entrance and exit, disable alarms and communications, participate in violent attack) or both;
 - (c) Suitable weapons up to and including hand-held automatic weapons, equipped with silencers, and having effective long-range accuracy;
 - (d) Hand-carried equipment including incapacitating agents and explosives for use as tools of entry or for otherwise destroying reactor, facility, transport, or container integrity or features of the safeguards system;
 - (e) Land vehicles used for transporting personnel and their hand-carried equipment; and the ability to operate as two or more teams.
- (2) An individual including an employee in any position; and
- (3) A conspiracy between individuals in any position who may have:
 - (a) Access to and detailed knowledge of the facilities referred to in §73.20(a) or
 - (b) Items that could facilitate theft of special nuclear material, (e.g., small tools, substitute material, false documents, etc.), or both.

4. SECURITY ORGANIZATION

4.1 Establishment of Security Organization

§73.46(b)(1) The security plan must commit the licensee to establish a security organization including guards.

§73.46(b)(1) If a contract security force is used, the security plan must commit the licensee to have written agreements with the contractor. These agreements must clearly show: (1) the licensee is responsible to the Commission for maintaining safeguards in accordance with Commission regulations and the licensee's security plan; (2) the NRC may inspect, copy, and take away copies of all reports and documents required to be kept by Commission regulations, orders and applicable license conditions whether such reports or documents are kept by the licensee or the contractor; (3) the requirement that the licensee demonstrate the ability of physical security personnel to perform their assigned duties and responsibilities, including demonstration of the ability of the contractor's physical security personnel to perform their assigned duties and responsibilities in carrying out the provisions of the security plan and section 73.46 of Title 10 of the Code of Federal Regulations; and (4) the contractor will not assign any personnel to the site who have not first been made aware of these responsibilities.

4.2 Security Organization Management

§73.46(b)(2) The security plan must commit the licensee to have onsite at all times at least one full time member of the security organization with authority to direct the physical protection activities of the security organization.

§73.46(b)(3) The security plan must commit the licensee to the establishment of a management system to provide for the development, revision, implementation and enforcement of security procedures. The security plan must describe a management system which includes (1) written security procedures which document the structure of the security organization and which detail the duties of the guards, watchmen, Tactical Response Team, and other individuals responsible for security; and (2) provisions for written approval of such procedures and any revisions thereto by the individual with overall responsibility for the security function.

4.3 Qualifications for Employment in Security

§73.46(b)(4) The security plan must commit the licensee not to permit an individual to act as a guard, watchman, Tactical Response Team member, or other member of the security organization unless the individual has been trained, equipped and qualified in accordance with Appendix B to Part 73, "General Criteria for Security Personnel".

§73.46(b)(4) The security plan must commit the licensee to demonstrate the ability of the physical security personnel, whether licensee or contractor employees, to carry out their assigned duties or responsibilities upon the request of an authorized member of the Commission.

§73.46(b)(5) The security plan must commit the licensee to affirm that, within any given period of time, a member of the security organization will not be assigned to or have direct operational control over more than one of the redundant elements of a physical protection subsystem if such assignment or control could result in the loss of effectiveness of the subsystem.

4.4 Guard Force Training

§73.46(b)(4) The security plan must commit the licensee to train guards, watchmen, Tactical Response Team members and other members of the security organization to perform each assigned security duty in accordance with Appendix B to Part 73.

§73.46(b)(4) The security plan must commit the licensee to requalify each guard, watchman, and Tactical Response Team member and other members of the security organization, whether a licensee or contractor employee, in accordance with Appendix B to Part 73.

App. B to Part 73, §II, E The security plan must commit the licensee to requalify security personnel at least every twelve months to perform assigned security-related job tasks and duties for both normal and contingency operations.

§73.46(b)(7) The security plan must commit the licensee, in addition to the qualification requirements of Appendix B to Part 73, to qualify and requalify guards and Tactical Response Team members annually for night firing with assigned weapons in accordance with Appendix H to Part 73.

§73.46(b)(8) The security plan must commit the licensee, in addition to the training requirement contained in Appendix B to Part 73, to require Tactical Response Team members to successfully complete training in response tactics.

4.5 Security Force Armament

§73.46(b)(6) The security plan must commit the licensee to arm each guard with a handgun, as described in Appendix B to Part 73.

§73.46(b)(6) The security plan must commit the licensee to arm each Tactical Response Team member with a 9mm semiautomatic pistol.

§73.46(b)(6) The security plan must commit the licensee to arm all but one member of the Tactical Response Team additionally with either a shotgun or a semiautomatic rifle, as described in Appendix B

to Part 73. Further, the security plan must commit that the remaining member of the Tactical Response Team carry, as an individually assigned weapon, a rifle of no less caliber than .30 inches or 7.62 mm.

4.6 Force-on-Force Exercises

- §73.46(b)(9) The security plan must commit the licensee to conduct Tactical Response Team and guard exercises to demonstrate the overall security system effectiveness and the ability of the security forces to perform response and contingency plan responsibilities and to demonstrate individual skills in assigned Team duties.
- §73.46(b)(9) For licensees possessing a materials license prior to September 1991, the security plan must commit the licensee to carry out, during each twelve month period commencing on the anniversary of 60 days from security plan approval, an exercise at least every four months for each shift, one third of which are to be force-on-force. (Licensees granted a materials license after September 1991, should consult with their NRC security plan reviewer for guidance on frequency of exercises.)
- §73.46(b)(9) The security plan must commit the licensee to demonstrate the capability to respond to attempts to steal strategic special nuclear material.
- §73.46(b)(9) The security plan must commit the licensee to permit, during each of the twelve month periods specified above, the NRC to observe one of the force-on-force exercises which demonstrates overall security system performance.
- §73.46(b)(9) The security plan must commit the licensee to notify the NRC of the aforementioned scheduled exercise 60 days prior to that exercise.

4.7 Records

- §73.46(b)(3)(i) The security plan must commit the licensee to retain a copy of current security procedures as a record until the Commission terminates the license for which these procedures were developed, and, if any portion of these procedures is superceded, retain the superceded material for three years after the change.
- §73.46(b)(4) The security plan must commit the licensee to document the results of qualification and requalification for security force members and to retain the documentation as a record for three years after each qualification and requalification.
- §73.46(b)(7) The security plan must commit the licensee, or the licensee's agent, to document the results of weapons qualification and requalification for night firing. This documentation must be

retained as a record for three years after each qualification and requalification.

§73.46(b)(8)

The security plan must commit the licensee to document the completion of training in response tactics for members of the Tactical Response Team. This documentation must be retained as a record for three years after training is completed.

§73.46(b)(9)

The security plan must commit the licensee to document the results of Tactical Response Team and guard exercises. This documentation must be retained as a record for three years after each exercise is completed.

5. PHYSICAL BARRIERS

5.1 General Layout

- §73.46(c)(1) The security plan must commit the licensee to locate vital equipment only within a vital area and to store and process strategic special nuclear material only within a material access area. More than one vital area or material access area may be located within a single protected area.
- §73.46(c)(1) The security plan must commit the licensee to locate both vital areas and material access areas within a protected area so that access to vital equipment and strategic special nuclear material requires passage through at least three physical barriers (two of which are protected area barriers).

5.2 Protected Area Barriers

- §73.46(c)(1) The security plan must commit the licensee to provide the perimeter of the protected area with two separate physical barriers with an intrusion detection system placed between the two.
- §73.46(c)(1) The security plan must commit the licensee to position and construct the inner protected area barrier to enhance assessment of penetration attempts and to delay attempts at unauthorized exit from the protected area.
- §73.46(c)(2) The security plan must commit the licensee to separate the physical barriers at the perimeter of the protected area from any other barrier designated as a physical barrier for a vital area or material access area within the protected area.

5.3 Vehicle Barriers

- §73.46(c)(1) The security plan must commit the licensee to incorporate features and structures at the perimeter of the protected area that prevent forcible vehicle entry.

5.4 Material Access Area Barriers

- §73.46(c)(5)(iii) The security plan must commit the licensee to process strategic special nuclear material, other than alloys, fuel elements or fuel assemblies only in material access areas constructed with barriers that provide significant delay to penetration.

5.5 Security Posts and Structures

- §73.46(d)(4)(i) The security plan must commit the licensee to isolate the individual responsible for the last access control function (controlling admission to the protected area) within a structure with bullet-resisting walls, doors, ceiling, floor, and windows.

5.6 Isolation Zones

- §73.46(c)(3) The security plan must commit the licensee to maintain isolation zones in outside areas adjacent to the physical barrier at the perimeter of the protected area.
- §73.46(c)(3) The security plan must commit the licensee to design isolation zones large enough to permit observation of the activities of people on either side of the barrier at the protected area perimeter in the event of its penetration.
- §73.46(c)(3) The security plan must commit the licensee to locate parking facilities outside of the isolation zone and exterior to the protected area if such facilities are provided for employees or visitors.

5.7 Illumination

- §73.46(c)(4) The security plan must commit the licensee to provide isolation zones and all exterior areas within the protected area with illumination sufficient for monitoring and observing but not less than 0.2 footcandles measured horizontally at ground level.

5.8 Storage of Strategic Special Nuclear Material

5.8.1 Vaults

- §73.46(c)(5)(i) The security plan must commit the licensee to store strategic special nuclear material, other than alloys, fuel elements, or fuel assemblies, in a vault when not undergoing processing if the material can be used directly in the manufacture of a nuclear explosive device.
- §73.46(c)(5)(i) The security plan must commit the licensee to design vaults used to protect strategic special nuclear material (other than alloys, fuel elements, and fuel assemblies) directly usable in the manufacture of a nuclear explosive device such that the vault is capable of preventing entry to stored strategic special nuclear material by a single action in a forced entry attempt, except as such single action would both destroy the barrier and render stored strategic special nuclear material incapable of being removed. These vaults must provide sufficient delay to prevent removal of stored strategic special nuclear material prior to arrival of response personnel capable of neutralizing the design basis threat stated in §73.1.

5.8.2 Tamper-Indicating Containers

- §73.46(c)(5)(ii) The security plan must commit the licensee to store strategic special nuclear material (other than alloys, fuel elements, or fuel assemblies) in tamper-indicating containers.

5.8.3 Process Material Access Areas

- §73.46(c)(5)(iii) The security plan must commit the licensee to process strategic special nuclear material (other than alloys, fuel elements, or fuel assemblies) only in material access areas constructed with barriers that provide significant delay to penetration.
- §73.46(c)(5)(iv) The security plan must commit the licensee to keep strategic special nuclear material (other than alloys, fuel elements or fuel assemblies) in locked compartments or locked process equipment while undergoing processing except when personally attended.

5.9 Storage of Enriched Uranium Scrap

- §73.46(c)(6) If desired by the licensee, the security plan may commit the licensee to store enriched uranium scrap (enriched to 20 percent or greater) in the form of small pieces, cuttings, chips, solution or in other forms which result from a manufacturing process, containered in 30 gallon or larger containers with a uranium-235 content of less than 0.25 grams per liter, within a locked and separately fenced area within a larger protected area provided that the storage area fence is no closer than 25 feet to the perimeter of the protected area.
- §73.46(c)(6) If the above described storage area is used, the security plan must commit the licensee to protect the area, when unoccupied, by a guard or watchman who shall patrol at intervals not exceeding 4 hours, or by intrusion alarms.

6.0 ACCESS CONTROL SUBSYSTEMS AND PROCEDURES

6.1 Numbered Picture Badge Identification Systems

§73.46(d)(1) The security plan must commit the licensee to use a numbered picture badge identification subsystem for all individuals who are authorized access to the protected area without escort.

§73.46(d)(1) For individuals not employed by the licensee but who require frequent and extended access to protected, material access or vital areas and for whom the licensee wishes to authorize access to such areas without escort, the security plan must commit the licensee to issue a picture badge to the individual upon entrance to the protected area and retrieve the badge upon exit from the protected area and design the badge such that it indicates (1) non-employee no escort required, (2) areas to which access is authorized and (3) the period for which access has been authorized.

§73.46(d)(1) The security plan must commit the licensee to require that badges be displayed by all individuals while inside the protected area.

6.2 Access to Vital Areas, Material Access Areas and Controlled Access Areas

§73.46(d)(2) The security plan must commit the licensee to limit unescorted access to vital areas, material access areas, and controlled access areas to individuals who are authorized access to the material and equipment in such areas and who require such access to perform their duties.

§73.46(d)(2) The security plan must commit the licensee to affirm that access to material access areas will include at least two individuals.

§73.46(d)(2) The security plan must commit the licensee to issue specially coded numbered badges to individuals authorized unescorted access to vital areas, material access areas, and controlled access areas which indicate the vital areas, material access areas, and controlled access areas to which access is authorized.

§73.46(d)(2) The security plan must commit that no activities other than those which require access to strategic special nuclear material or to equipment used in the processing, use, or storage of strategic special nuclear material or necessary maintenance, will be permitted within a material access area.

6.3 Access Controls at the Protected Area

6.3.1 Personnel

§73.46(d)(4)(i) The security plan must commit the licensee to control all points of personnel access into a protected area.

- §73.46(d)(4)(i) For all individuals entering the protected area, the security plan must commit the licensee to identify the individuals; search the individuals for firearms, explosives and incendiary devices; and check the individuals' authorizations. Federal, State, and local law enforcement personnel on official duty and United States Department of Energy couriers engaged in the transport of special nuclear material are exempt from this requirement.
- §73.46(d)(4)(i) The security plan must commit the licensee to accomplish the search function for detection of firearms, explosives, and incendiary devices through the use of detection equipment capable of detecting both firearms and explosives.
- §73.46(d)(4)(i) The security plan must commit the licensee to isolate the individual responsible for the last access control function (controlling admission to the protected area) within a structure with bullet-resisting walls, doors, ceiling, floor, and windows.
- §73.46(d)(4)(ii) The security plan must commit the licensee to conduct a physical pat-down search of an individual when the licensee has cause to suspect that the individual is attempting to introduce firearms, explosives, or incendiary devices into the protected area.
- §73.46(d)(4)(iii) The security plan must commit the licensee, whenever firearms or explosives detection equipment at a portal is out of service or not operating satisfactorily, to conduct a physical pat-down search of all persons who would otherwise have been subject to search using the equipment.

6.3.2 Hand-Carried Packages

- §73.46(d)(3) The security plan must commit the licensee to establish and follow written procedures that will permit access control personnel to identify those materials that are not authorized entry to protected areas.
- §73.46(d)(5) The security plan must commit the licensee to search for firearms, explosives and incendiary devices all hand-carried packages at the points of personnel and vehicle access into a protected area, except those carried by individuals exempted from search under paragraph 73.46(d)(4)(i),

6.3.3 Delivered Packages

- §73.46(d)(3) The security plan must commit the licensee to establish and follow written procedures that will permit access control personnel to identify those materials that are not authorized entry to the protected area.
- §73.46(d)(6) The security plan must commit the licensee to check all packages and material for delivery into the protected area for proper identification and authorization and to search for

firearms, explosives, and incendiary devices prior to admittance to the protected area except those Commission approved delivery and inspection activities specifically designated by the licensee to be carried out within material access, vital, or protected areas for reasons of safety, security, or operational necessity.

6.3.4 Vehicles

- §73.46(d)(3) The security plan must commit the licensee to establish and follow written procedures that will permit access control personnel to identify those vehicles that are authorized entry to protected areas.
- §73.46(d)(4)(i) The security plan must commit the licensee to control all points of vehicle access into a protected area.
- §73.46(d)(7) The security plan must commit the licensee to search all vehicles, except U.S. Department of Energy vehicles engaged in transporting special nuclear material and emergency vehicles under emergency conditions, for firearms, explosives and incendiary devices prior to entry into the protected area.
- §73.46(d)(7) The security plan must commit the licensee to search the following vehicle areas as part of a required search: the cab, engine compartment, undercarriage, and cargo area.
- §73.46(d)(8) The security plan must commit the licensee to escort all vehicles, except designated licensee vehicles, requiring entry into the protected area by a member of the security organization while within the protected area, and to the extent practicable, to off-load the vehicle in an area that is not adjacent to a vital area.

6.3.5 Designated Licensee Vehicles

- §73.46(d)(8) The security plan must commit the licensee to limit designated licensee vehicles in their use to onsite plant functions and to keep such vehicles within the protected area except for operational, maintenance, security and emergency purposes.
- §73.46(d)(8) The security plan must commit the licensee to exercise positive control over all designated licensee vehicles to assure that they are used only by authorized persons and for authorized purposes.

6.4 Access Controls at Vital Areas, Material Access Areas and Controlled Access Areas

6.4.1 Personnel

- §73.46(d)(9) The security plan must commit the licensee to control all points of personnel access to material access areas, vital areas, and controlled access areas.
- §73.46(d)(9) The security plan must commit the licensee to post at least

two armed guards trained in accordance with §73.46(b)(7) and Appendix B of Part 73 at each material access area control point whenever in use.

§73.46(d)(9) The security plan must commit the licensee to verify the identification and authorization of personnel at material access area control points.

§73.46(d)(9) The security plan must commit the licensee to conduct two separate searches of individuals exiting a material access area for concealed strategic special nuclear material. For individuals exiting an area that contains only alloyed or encapsulated strategic special nuclear material, the second search may be conducted in a random manner.

6.4.2 Material

§73.46(d)(9) The security plan must commit the licensee to search packages for firearms, explosives and incendiary devices prior to entry into a material access area.

§73.46(d)(9) The security plan must commit the licensee to search all material and packages, including trash, wastes, tools, and equipment exiting from a material access area for concealed strategic special nuclear material by a team of at least two individuals who are not authorized access to that material access area.

6.4.3 Vehicles

§73.46(d)(3) The security plan must commit the licensee to establish and follow written procedures that will permit access control personnel to identify those vehicles that are authorized entry to material access, and vital areas.

§73.46(d)(9) The security plan must commit the licensee to control all points of vehicle access to material access areas, vital areas, and controlled access areas.

§73.46(d)(9) The security plan must commit the licensee to post at least two armed guards trained in accordance with the provisions of §73.46(b)(3) and Appendix B to Part 73 at each material access area control point whenever in use.

§73.46(d)(9) The security plan must commit the licensee to verify identification and authorization of vehicles at the material access area control point.

§73.46(d)(9) The security plan must commit the licensee to search all vehicles exiting from a material access area for concealed strategic special nuclear material by a team of at least two individuals who are not authorized access to that material access area.

6.5 Material Access Area Exit Search of Contaminated Waste

- §73.46(d)(10) The security plan must commit the licensee to drum scan and tamper-seal containers of contaminated wastes before exiting from a material access area by at least two individuals, working and recording as a team, who do not have access to the material processing and storage areas.
- §73.46(d)(12) The security plan must commit the licensee to designate areas used for packaging and screening trash and waste as controlled access areas and separate such areas from processing and storage areas.

6.6 Shipment of Strategic Special Nuclear Material Offsite

- §73.46(d)(11) The security plan must commit the licensee to pack and place in sealed containers strategic special nuclear material (including product, samples and scrap) prepared for shipment offsite.
- §73.46(d)(11) The security plan must commit the licensee to carry out the above procedure in the presence of at least two individuals working as a team who will verify and certify the content of each shipping container through the witnessing of gross weight measurements and nondestructive assay and through the inspection of tamper-seal integrity and associated seal records.
- §73.46(d)(12) The security plan must commit the licensee to designate areas used for preparing strategic special nuclear material for shipment as controlled access areas and to separate these areas from processing and storage areas.

6.7 Escorts and Escorted Individuals

- §73.46(d)(13) The security plan must commit the licensee to escort individuals not permitted to enter protected areas without escort by a watchman or other individual designated by the licensee while in a protected area.
- §73.46(d)(13) The security plan must commit the licensee to badge individuals requiring escorts with a badge that indicates escort required.
- §73.46(d)(13) The security plan must commit the licensee to register individuals requiring escort in a log that includes the following information: 1) the individual's name, 2) date, 3) time, 4) purpose of visit and employment affiliation, 5) citizenship, and 6) name of individual to be visited.

6.8 Keys, Locks, and Combinations

- §73.46(d)(14) The security plan must commit the licensee to control all keys, locks, combinations, and related equipment used to

control access to protected, material access, vital, and controlled access areas to reduce the probability of compromise.

§73.46/ (14) The security plan must commit the licensee to change keys, locks, combinations, and related equipment whenever there is evidence that the keys, locks, combinations, and related equipment may have been compromised.

§73.46(d)(14) The security plan must commit the licensee, upon termination of employment of any employee, to change keys, locks, combinations, and related equipment to which that employee had access.

6.9 Records

§73.46(d)(3) The security plan must commit the licensee to retain a copy of current written procedures that permit access control personnel to identify vehicles that are authorized and those materials that are not authorized entry to protected, material access, and vital areas. These procedures must be retained as a record until the Commission terminates each license for which the procedures were developed and, if any portion of the procedures is superseded, retain the superseded material for three years after each change.

§73.46(d)(10) The security plan must commit the licensee to retain as a record the findings of drum scanning and tamper-sealing of containers of contaminated waste exiting from a material access area for a period of three years after the record is made.

§73.46(d)(13) The security plan must commit the licensee to retain as a record the required log of escorted individuals for a period of three years after the last entry is made in the log.

7.0 DETECTION, SURVEILLANCE, AND ALARM SUBSYSTEMS

7.1 Isolation Zone Penetration

§73.46(e)(1) The security plan must commit the licensee to provide an intrusion alarm subsystem with a capability to detect penetrations through the isolation zone and to permit response action.

7.2 Emergency Exits

§73.46(e)(2) The security plan must commit the licensee to lock all emergency exits in each protected, material access, and vital area to prevent entry from the outside.

§73.46(e)(2) The security plan must commit the licensee to alarm all emergency exits in each protected, material access and vital area to provide local visible and audible alarm annunciation.

§73.46(e)(5) The security plan must commit the licensee to annunciate emergency exit alarms in a continuously manned central alarm system station and in at least one other continuously manned onsite alarm station.

7.3 Material Access Area/Vital Area Protection

§73.46(e)(3) The security plan must commit the licensee to lock and protect by an intrusion alarm subsystem all unoccupied vital areas and material access areas. The intrusion alarm subsystem must alarm upon the entry of a person anywhere into the area, upon exit from the area, and upon movement of an individual within the area, except that for process material access areas only the location of the strategic special nuclear material within the area is required to be so alarmed.

§73.46(e)(3) The security plan must commit the licensee, in addition to locking and protecting by an intrusion alarm subsystem, to keep under the surveillance of closed circuit television, that is monitored in both alarm stations, vaults and process areas that contain strategic special nuclear material that has not been alloyed or encapsulated.

§73.46(e)(3) The security plan must commit the licensee to employ means which require that an individual other than an alarm station operator be present at or have knowledge of access to unoccupied vaults or process areas that contain strategic special nuclear material that has not been alloyed or encapsulated.

7.4 Duress Alarms

§73.46(e)(4) The security plan must commit the licensee to provide all manned access control points within the protected area barrier, all security patrols and guards stations within the protected area and both alarm stations with duress alarms.

7.5 Central and Secondary Alarm Stations

- §73.46(e)(5) The security plan must commit the licensee to annunciate all alarms required pursuant to §73.46 in a continuously manned central alarm station located within the protected area and at least one other independent, continuously manned onsite station not necessarily within the protected area so that a single act cannot remove the capability of calling for assistance or responding to an alarm.
- §73.46(e)(5) The security plan must commit the licensee to designate the alarm stations as controlled access areas.
- §73.46(e)(5) The security plan must commit the licensee to make bullet-resisting the walls, doors, ceilings, floors and windows of the alarm stations.
- §73.46(e)(5) The security plan must commit the licensee to locate the central alarm station within a building so that the interior of the central alarm station is not visible from the perimeter of the protected area.
- §73.46(e)(5) The security plan must commit the licensee to affirm that the central alarm station will not contain any operational activities that would interfere with the execution of alarm response functions.

7.6 Power Sources

- §73.46(e)(6) The security plan must commit the licensee to keep operable from independent power sources all alarms required by §73.46(e) in the event of loss of normal power.
- §73.46(e)(6) The security plan must commit the licensee to affirm that switchover to standby power will be automatic and will not cause false alarms on annunciator modules.

7.7 Component Supervision

- §73.46(e)(7) The security plan must commit the licensee to affirm that all alarm devices including transmission lines to annunciators are tamper-indicating and self-checking e.g., an automatic indication is provided when a failure of the alarm system or a component occurs, when there is an attempt to compromise the system, or when the system is on standby power.
- §73.46(e)(7) The security plan must commit the licensee to affirm that the annunciation of an alarm at the alarm stations will indicate the type of alarm (e.g., intrusion alarm, emergency exit alarm, etc.) and location.

§73.46(e)(7) The security plan must commit the licensee to indicate the status of all alarms and alarm zones in the alarm stations.

7.8 External Protected Area Monitoring and Assessment

§73.46(e)(8) The security plan must commit the licensee to monitor and periodically check all exterior areas within the protected area to detect the presence of unauthorized persons, vehicles, materials, or unauthorized activities.

7.9 Observation Methods within Material Access Areas

§73.46(e)(9) The security plan must commit the licensee to provide and use on a continuing basis methods to observe individuals within material access areas to assure that strategic special nuclear material is not moved to unauthorized locations or in an unauthorized manner.

8.0 COMMUNICATIONS SUBSYSTEMS

8.1 Security Force Communications

§73.46(f)(1) The security plan must commit the licensee to affirm that each guard, watchman, or armed response individual on duty will be capable of maintaining continuous communications with an individual in each continuously manned alarm station who will be capable of calling for assistance from other guards, watchmen, and armed response personnel and from law enforcement authorities.

8.2 Alarm Stations Communications

§73.46(f)(2) The security plan must commit the licensee to provide each alarm station with both conventional telephone service and radio or microwave-transmitted two-way voice communication, either directly or through an intermediary, for the capability of communication with the law enforcement authorities.

8.3 Power Sources

§73.46(f)(3) The security plan must commit the licensee to keep operable from independent power sources non-portable communications equipment controlled by the licensee and required by section 73.46(f) in the event of loss of normal power.

9.0 TEST AND MAINTENANCE PROGRAMS

9.1 Installation and Construction Tests

§73.46(g)(1) The security plan must commit the licensee to have a test and maintenance program for intrusion alarms, emergency exit alarms, communications equipment, physical barriers, and other physical protection related devices and equipment used pursuant to §73.46 that will provide for test and inspections during the installation and construction of physical protection subsystems and components to assure that they comply with their respective design criteria and performance specifications.

9.2 Pre-Operational Tests

§73.46(g)(2) The security plan must commit the licensee to have a test and maintenance program for intrusion alarms, emergency exit alarms, communications equipment, physical barriers, and other physical protection related devices and equipment used pursuant to §73.46 that will provide for preoperational tests and inspections of physical protection related subsystems and components to demonstrate their effectiveness and availability with respect to their respective design criteria and performance specifications.

9.3 Operational Tests

§73.46(g)(3) The security plan must commit the licensee to have a test and maintenance program for intrusion alarms, emergency exit alarms, communications equipment, physical barriers, and other physical protection related devices and equipment used pursuant to §73.46 that will provide for operational tests and inspections of physical protection related subsystems and components to assure their maintenance in an operable and effective condition.

§73.46(g)(3)(i) The security plan must commit the licensee to include as part of operational testing, the testing of each intrusion alarm at the beginning and end of any period that it is used. If the period of continuous use is longer than seven days, the intrusion alarm must be tested at least once every seven days.

§73.46(g)(3)(ii) The security plan must commit the licensee to include as part of operational testing, the testing of communications equipment required for communications onsite, including duress alarms, for performance not less frequently than once at the beginning of each security personnel work shift.

§73.46(g)(3)(ii) The security plan must commit the licensee to include as part of operational testing, the testing of communications equipment required for communications offsite. This equipment must be tested for performance not less than once a day.

9.4 Preventative Maintenance Programs

- §73.46(g)(4) The security plan must commit the licensee to establish preventative maintenance programs for physical protection related subsystems and components to assure their continued maintenance in operable and effective condition.
- §73.46(g)(5) The security plan must commit the licensee to maintain all physical protection related subsystems and components in operable condition.
- §73.46(g)(5) The security plan must commit the licensee to develop and employ corrective action procedures and compensatory measures to assure that the effectiveness of the physical protection system is not reduced by failure or other contingencies affecting the operation of the security related equipment or structures.

9.5 Repairs and Maintenance

- §73.46(g)(5) The security plan must commit the licensee to affirm that repairs and maintenance are performed by at least two individuals working as a team who have been trained in the operation and performance of the equipment.
- §73.46(g)(5) The security plan must commit that the security organization will be notified before and after repair and maintenance service is performed and that performance verification tests will be conducted after service has been completed.

9.6 Reviews and Audits

- §73.46(g)(6) The security plan must commit the licensee to review their security programs at least every twelve months by individuals independent of both security management and security supervision.
- §73.46(g)(6) The security plan must commit the licensee to include within the security organization review: a review and audit of security procedures and practices, evaluation of the effectiveness of the physical protection system, an audit of the physical protection system testing and maintenance program, and an audit of commitments established for response for local law enforcement authorities.
- §73.46(g)(6) The security plan must commit the licensee to affirm that the results of the review, audit, and evaluation, along with recommendations, corrections, and improvements, if any, will be documented, reported to the licensee's plant management, and to corporate management at least one level higher than that having responsibility for the day to day plant operations.
- §73.46(g)(6) The security plan must commit the licensee to keep reports of security program reviews available at the plant for inspection for a period of five years.

10.0 CONTINGENCY RESPONSE PLANS AND PROCEDURES

10.1 Contingency Plan Documentation

- §73.46(h)(1) The security plan must commit the licensee to have a safeguards contingency plan for dealing with threats, thefts, and radiological sabotage related to the strategic special nuclear material and nuclear facilities subject to §73.46.
- §73.46(h)(1) The security plan must commit the licensee to develop safeguards contingency plans in accordance with the criteria in Appendix C to Part 73, "Licensee Safeguards Contingency Plans."
- §73.46(h)(1) The security plan must commit the licensee to include within contingency plans the response requirements of paragraphs (h)(2) through (h)(5) of §73.46. The contingency plans need not be limited to the discussion of these particular requirements.

10.2 Local Law Enforcement Agency Liaison

- §73.46(h)(2) The security plan must commit the licensee to establish and document response arrangements that have been made with local law enforcement authorities.

10.3 Tactical Response Force

- §73.46(h)(3) The security plan must commit the licensee to have available at the facility a Tactical Response Team consisting of a minimum of five (5) members to fulfill assessment and response requirements.
- §73.46(h)(3) The security plan must commit the licensee to have available a force of guards or armed response personnel to provide assistance as necessary in addition to the Tactical Response Team.
- §73.46(h)(3) The security plan must commit the licensee to determine the size and availability of the additional force on the basis of site-specific considerations that could affect the ability of the total onsite response force to engage and impede the adversary force until offsite assistance arrives.
- §73.46(h)(3) The security plan must include the licensee's rationale for the total number and availability of onsite armed response personnel.

10.4 Response Procedures

- §73.46(h)(4) The security plan must commit the licensee to establish response procedures for dealing with detection of abnormal presence or activity of persons or vehicles within an isolation zone, a protected area, a material access area, or a

vital area or evidence or indication of intrusion into a protected area, a material access area, or a vital area.

§73.46(b)(4)

For the events described above, the security plan must commit the licensee to affirm that the security organization will: 1) determine whether or not a threat exists; 2) assess the extent of the threat, if any; and 3) take immediate concurrent measures to neutralize the threat by a) requiring responding guards or other armed response personnel to interpose themselves between vital areas and material access areas and any adversary attempting entry for purposes of theft of strategic special nuclear material and to intercept any person exiting with special nuclear material, and b) informing local law enforcement agencies of the threat and requesting assistance.

10.5 Use of Force

§73.46(h)(5)

The security plan must commit the licensee to instruct every guard and all response personnel to prevent or impede acts of theft of strategic special nuclear material by using force sufficient to counter the force directed at them, including the use of deadly force, when the guard or other response person has a reasonable belief that it is necessary in self-defense or the defense of others.

10.6 Protected Area Alarm Assessment

§73.46(h)(6)

The security plan must commit the licensee to provide a capability of observing isolation zones and the physical barrier at the perimeter of the protected area to facilitate initial response to detection of penetration of the protected area and assessment of the existence of a threat. This capability should preferably be provided by means of closed circuit television or by other suitable means which limit exposure of responding personnel to possible attack.

10.7 Unoccupied Vault/Material Access Area Alarm Assessment

§73.46(h)(7)

The security plan must commit the licensee to assess alarms occurring within unoccupied vaults and unoccupied material access areas containing unalloyed or unencapsulated strategic special nuclear material by at least two security personnel using closed circuit television or other remote means.

10.8 Unoccupied Material Access Area (Alloyed/Encapsulated Strategic Special Nuclear Material) Alarm Assessment

§73.46(h)(8)

The security plan must commit the licensee to assess alarms occurring within unoccupied material access areas that contain only alloyed or encapsulated strategic special nuclear material either by at least two security personnel using closed circuit television or other remote means or by at least two security personnel who undergo a search before exiting the material access area.

10.9 Records

- §73.46(h)(1) The security plan must commit the licensee to retain a copy of the current safeguards contingency plan as a record until the Commission terminates the license and, if any portion of the plan is superseded, retain the superseded material for three years after each change.
- §73.46(h)(2) The security plan must commit the licensee to retain documentation of current arrangement with the local law enforcement agency as a record until the Commission terminates such license requiring the arrangements and, if any arrangement is superseded, retain the superseded material for a period of three years after each change.

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This NUREG document presents criteria developed from U.S. Nuclear Regulatory Commission regulations for the evaluation of physical security plans submitted by Category I fuel facility licensees. Category I refers to those licensees who use or possess a formula quantity of strategic special nuclear material.

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ACCEPTANCE CRITERIA FOR THE EVALUATION OF CATEGORY I
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