

ENCLOSURE "C"

REGULATORY GUIDE 5.XX

STANDARD FORMAT AND CONTENT FOR THE LICENSEE PHYSICAL SECURITY PLAN  
FOR THE PROTECTION OF SPECIAL NUCLEAR MATERIAL OF MODERATE OR LOW STRATEGIC SIGNIFICANCE

INTRODUCTION

The Atomic Energy Act of 1954, as amended, directed the U.S. Atomic Energy Commission (AEC) to regulate the receipt, manufacture, production, transfer, possession, use, import, and export of special nuclear material (SNM) in order to protect the public health and safety and to provide for the common defense and security. The Energy Reorganization Act of 1974 transferred all the licensing and related regulatory functions of the AEC to the Nuclear Regulatory Commission (NRC).

The principal requirements with respect to the physical protection of licensed activities against industrial sabotage and with respect to the physical protection of special nuclear material in transit are found in Title 10, Code of Federal Regulations, Part 50 (10 CFR Part 50), "Licensing of Production and Utilization Facilities"; Part 70, "Special Nuclear Material"; Part 73, "Physical Protection of Plants and Materials"; and Part 110, "Export and Import of Nuclear Facilities and Materials."

Paragraph 50.34(c) of 10 CFR Part 50 and Paragraphs 70.22(g), 70.22(h) and 70.22(k) of 10 CFR Part 70 identify the physical protection information that must be provided in a Physical Security Plan as part of a license application. This plan is required in order for the applicant to demonstrate compliance with the specific physical protection requirements of 10 CFR Part 73 and must be submitted with each application for a license to possess or use SNM (or for a license authorizing transport or delivery of SNM), except for a licensee possessing, using or transporting less than 10 Kg of SNM of low strategic significance where submitting a physical security plan is not required. However, in this case, the licensee is required to meet the requirements of 73.47 for the protection of SNM of low strategic significance.

This document (Standard Format) describes the information required in the physical security plan submitted as part of an application for a license to possess, use, or transport SNM of moderate strategic significance or 10 kg or more of SNM of low strategic significance and prescribes a standard format for presenting the information in an orderly arrangement. This standard format will thus serve as an aid to uniformity and completeness in the preparation and review of the physical protection plan of the license application. This document can also be used as guidance by licensees possessing or transporting less than 10 kg of SNM of low strategic significance in understanding the intent and implementing the requirements of paragraphs 73.47(a), 73.47(f), and 73.47(g) of 10 CFR Part 73.

Aside from providing guidance for the standard format and content of physical security plans, this regulatory guide explains the intent of the various provisions of the regulation. The intent of each requirement is found in the discussion of each subsection and implicitly is provided by outlining alternative systems that could be used to fulfill the requirements. The discussion section and list of alternatives should provide the licensee with the sense of the NRC regulations.

This guide is divided into two parts. Part I, "SNM of moderate strategic significance," prescribes a standard format for preparing the licensee's security plans and provides guidance to licensee's who possess, use, or transport SNM of moderate strategic significance. Chapters 1 through 6 of Part I applies to applications for a license to possess or use at any fixed site, or at contiguous sites, subject to control by the licensee, SNM of moderate strategic significance. Chapters 7 through 11 of Part I of the Standard Format applies to applications for authorization to transport or deliver to a carrier for transport SNM of moderate strategic significance.

Part II, "SNM of Low Strategic Significance," prescribes a standard format for preparing the licensee's security plan for licensees who possess, use, or transport more than 10 kg of SNM of low strategic significance. It also provides guidance to all licensees who possess, use, or transport SNM of low strategic significance. Chapters 12 through 15 of Part II of the Standard Format applies to applications for a license to possess or use at any fixed site, or at contiguous sites, subject to control by the licensee, more than 10 kg of SNM of low strategic significance. Chapters 16 through 20 of Part II of the Standard Format applies to applications for authorization to transport or deliver to a carrier for transport more than 10 kg of SNM of low strategic significance.

Table I shows the type and amount of SNM covered in 10 CFR Part 73.47. It should be noted, as stated in Table I's footnote, that a) plutonium with an isotopic concentration exceeding 80% or more in Pu-238, b) special nuclear material which is not readily separable from other radioactive material and which has a total external radiation dose rate in excess of 100 rems per hour at a distance of 3 feet from any accessible surface without intervening shielding, and c) sealed plutonium-beryllium neutron sources totaling 500 grams or less contained plutonium at any one site or continuous sites are exempt from the requirements of 10 CFR 73.47.

This guide has been prepared to minimize lost time attributable to incomplete applications and to standardize the licensing review process. The applicant is encouraged to prepare his application in accordance with this guide and to provide information in each section to support the conclusion that he will be able to operate in accordance with the pertinent regulations. Although conformance with this guide is not required, it does represent a format and content acceptable to the NRC staff.

As developments and changes in the nuclear industry occur, the Commission's requirements for information may need modification; revisions to this guide will be made as necessary to accommodate these changes.

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TABLE 1  
CATEGORIZATION OF NUCLEAR MATERIAL

MATERIAL*	ENRICHMENT	MODERATE STRATEGIC SIGNIFICANCE	LOW STRATEGIC SIGNIFICANCE
1. Plutonium**	--	Less than 2000 g but more than 500 g	500 g or less but more than 15 g
2. Uranium-235	20% or more in U-235 isotope	Less than 5000 g but more than 1000 g	1000 g or less but more than 15 g
	10% or more but less than 20% in U-235 isotope	10,000 g or more	Less than 10,000 g but more than 1000 g
	Above natural but less than 10%	--	10,000 g or more
3. Uranium-233	--	Less than 2000 g but more than 500 g	500 g or less but more than 15 g
4. Uranium-235 Uranium-233 and Plutonium** in combination	U-235 portion enriched to 20% or more.	Less than 5000 g according to the formula: grams = (grams contained U-235) + 2.5 (grams U-233 + grams Plutonium*), but more than 1000 g according to the formula: grams = (grams U-235) + 2.0 (grams U-233 + grams Plutonium*)	1000 g or less according to the formula: grams = (grams contained U-235) + 2.0 (grams U-233 + grams Plutonium*), but more than 15 g according to the formula: grams = grams contained U-235 + grams U-233 + grams Plutonium.*

\* Plutonium with isotopic concentration exceeding 80% or more in Pu-238 is exempt.

\*\* Special nuclear material which is not readily separable from the radioactive material and which has a total external radiation dose rate in excess of 100 rems per hour at a distance of 3 feet from any accessible surface without intervening shielding is exempt.

o Sealed plutonium-beryllium neutron sources totaling 500 grams or less contained plutonium at any one site or contiguous sites are exempt.

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### Purpos: and Applicability

This standard format document has been prepared as an aid to uniformity and completeness in the preparation and review of the physical protection section of license applications and to clarify the intent of the regulations. The information this document contains will help the licensee plan a physical protection system designed to detect the theft of SNM of moderate or low strategic significance. The physical protection subsystems identified are intended to provide a reference physical protection system that would normally be capable of meeting the performance requirements of paragraph 73.47(a) of 10 CFR Part 73. However, it is recognized that at any particular site there may be some subsystems and components not needed or additional ones needed to meet these performance requirements. In this case the licensee is encouraged to address in his license application specific departures from this guide of subsystems or components.

The information requested in this Standard Format is the minimum needed for a license application. Additional information may be required for completion of the staff review of a particular application and should be included as appropriate. It is also the applicant's responsibility to be aware of new and revised NRC regulations. The information provided should be up-to-date with respect to the state of technology for the physical protection techniques and systems that the applicant proposes to use.

Information and procedures delineated in Regulatory Guides in Division 5, "Materials and Plant Protection," and appropriate to certain sections of the Physical Security Plan may be incorporated by reference.

The applicant should discuss his plans and programs with the NRC staff before preparing his application. This discussion should give particular emphasis to the depth of information required for the plan.

Upon receipt of an application, the NRC staff will perform a preliminary review to determine whether the application provides a reasonably complete presentation of the information needed to form a basis for the findings required before issuance of a license. The Standard Format will be used by the staff as a guideline for identifying the type of information needed. If an application does not provide a reasonably complete presentation of the necessary information, further review of an application will be suspended until this needed information is provided.

### Use of the Standard Format

The applicant should follow the numbering system of the Standard Format at least down to the level of subsection (e.g., 3.4). Under some circumstances certain subsections may not be applicable to a specific application. If so, this should be clearly stated and sufficient information should be provided to support that conclusion.

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The applicant may wish to submit information in support of his application that is not required by regulations and is not essential to the description of the applicant's physical protection program. Such information could include, for example, historical data submitted in demonstration of certain criteria, discussion of alternatives considered by the applicant, or supplementary data regarding assumed models, data, or calculations. This information should be provided as an appendix to the application.

Upon completion of the application, the applicant should use the Table of Contents of the Standard Format as a checklist to ensure that each subject has been addressed.

### Style and Composition

A table of contents should be included in each submittal.

The applicant should strive for clear, concise presentation of information. Confusing or ambiguous statements and general statements of intent should be avoided. Definitions and abbreviations should be consistent throughout the submittal and consistent with generally accepted usage.

Wherever possible, duplication of information should be avoided. Thus, information already included in other sections of the applications may be covered by specific reference to those sections.

Where numerical values are stated, the number of significant figures should reflect the accuracy or precision to which the number is known. The use of relative values should be clearly indicated.

Drawings, diagrams, and tables should be used when information may be presented more adequately or conveniently by such means. These illustrations should be located in the section where they are first referenced. Care should be taken to ensure that all information presented in drawings is legible, that symbols are defined, and that drawings are not reduced to the extent that they cannot be read by unaided normal eyes.

### Physical Specifications of Submittals

All material submitted in an application should conform to the following physical dimensions of page size, quality of paper and inks, numbering of pages, etc.:

#### 1. Paper Size

Text pages: 8-1/2 x 11 inches.

Drawings and graphics: 8-1/2 x 11 inches preferred; however, a larger size is acceptable provided the finished copy when folded does not exceed 8-1/2 x 11 inches.

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2. Paper Stock and Ink

Suitable quality in substance, paper color, and ink density for handling and for reproduction by microfilming.

3. Page Margins

A margin of no less than one inch is to be maintained on the top, bottom, and binding side of all pages submitted.

4. Printing

Composition: text pages should be single spaced.

Type face and style: must be suitable for microfilming.

Reproduction: may be mechanically or photographically reproduced. All pages of the text may be printed on both sides, and images should be printed head to head.

5. Binding

Pages should be punched for looseleaf ring binding.

6. Page Numbering

Pages should be numbered by section and sequentially within the section. Do not number the entire report sequentially. (This entire Standard Format has been numbered sequentially because the individual chapters were too short for sequential numbering within each section to be meaningful.)

7. Format References

In the application, references to this Standard Format should be by chapter and section numbers.

Procedures for Updating or Revising Pages

The updating or revising of data and text should be on a replacement page basis.

The changed or revised portion of each page should be highlighted by a vertical line. The line should be on the margin opposite the binding margin for each line changed or added. All pages submitted to update, revise, or add pages to the report are to show the date of change. The transmittal letter should include an index page listing the pages to be inserted and the pages to be removed. When major changes or additions are made, pages for a revised Table of Contents should be provided.

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### Number of Copies

The applicant should submit the appropriate number of copies of each required submittal pursuant to 10 CFR § 70.21.

### Public Disclosure

The NRC had determined that the public disclosure of the details of physical protection programs is not in the public interest, and such details are withheld pursuant to Paragraph 2.790(d) of 10 CFR Part 2. Thus, the physical protection section of each application should be submitted as a separate enclosure. Other proprietary and classified information should be clearly identified and submitted in separate enclosures. Each such submission of proprietary information should be accompanied by the applicant's detailed reasons and justifications for requesting exemption from public disclosure, as required in Paragraph 1.790(b) of 10 CFR Part 2.

## PART I: SNM OF MODERATE STRATEGIC SIGNIFICANCE

### CHAPTER 1 USE AND STORAGE AREA DESCRIPTION

This chapter provides guidance on meeting the requirements of paragraphs 73.47(d)(1) and (d)(2) which are as follows:

- (d)(1) Use the material only within a controlled access area which is illuminated sufficiently to allow detection and surveillance of unauthorized penetration or activities.
- (d)(2) Store the material only within a controlled access area such as a vault-type room or approved security cabinet or their equivalent which is illuminated sufficiently to allow detection and surveillance of unauthorized penetration or activities.

A controlled access area (CAA) is defined in 73.2 paragraph (z) as, "any temporarily or permanently established area which is clearly demarcated, access to which is controlled and which affords isolation of the material, equipment or persons within it." Thus a CAA can be an approved security cabinet with lock to which only authorized individuals have the combination or key, or a vault or vault-type room which uses some type of access control system to limit access to authorized individual, a locked laboratory for which only authorized individuals such as professors or lab instructors have the combination or key, or any open area whose boundaries are clearly defined and into which access of personnel is controlled. The regulations as written are designed to allow the licensee a great deal of flexibility in meeting the requirements in a cost effective manner.

#### 1.1 AREA WHERE MATERIAL IS USED (73.47(d)(1))

##### Intent

Temporarily established CAAs for the use of SNM need not have permanent type physical barriers at their boundaries. Office partitions, cordons or other devices can be used to warn

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passersby of the restricted nature of the area, while access control can be effected through surveillance or supervision of the area by those using the SNM at the time. However, if the material is to be left unattended in such an area, additional protection must be provided to control access and assure a detection capability in the absence of authorized personnel. This could be accomplished, for example, through the posting of signs and the use of motion detection equipment covering the immediate area in which the SNM is located. Although the material may be considered in "use," protection requirements would be the same as though the material were in storage, since authorized personnel would not be present.

Permanently designated areas for the use of SNM would more closely approximate CAAs intended for the storage of SNM. In this case, permanent type physical barriers would be a more likely choice, such as would be provided in the case of a laboratory or reactor containment structure, in which it was desired to have SNM continually present and in use. Such an area may also serve as a storage area. Although access control and detection capabilities may be provided through the use of appropriate hardware during the period when SNM is stored in this area, other means of providing these capabilities may be required to complement such hardware in the case that alarms are deactivated or doors unlocked, etc. In such cases, licensees may rely upon authorized personnel to effect the required protection.

Illumination sufficient to allow detection and surveillance of unauthorized penetration or activities within the CAA where the material is used need not require the use of high intensity lighting throughout the CAA. What is intended is the use of normal lighting sufficiently uniform throughout the CAA so that material or unauthorized personnel cannot be secreted in a darkened area until a time more convenient for the unauthorized removal of the material. For those facilities where experiments must be conducted in a darkened room, the lighting requirement is exempted for as long as is needed provided access control is assured and the material is accounted for at the end of the experiment.

#### Content

Describe the CAA where the material will be used. To be included in this description is information on the type of barriers surrounding the material, the portals that allow access to the material, the size of the area, the permanence of the CAA, the use of the CAA (e.g., laboratory, process area, reactor room, etc.), the lighting level and uniformity provided that will allow detection and surveillance of unauthorized penetration or activities and whether the material will be stored there also.

#### 1.2 AREA WHERE MATERIAL IS STORED (73.47(d)(2))

#### Intent

CAAs used for the storage of SNM should provide protection against theft equivalent to a vault-type room or an approved security cabinet. A vault-type room is defined in 10 CFR Part 73.2 as, "a room with one or more doors, all capable of being locked, protected by an intrusion alarm which creates an alarm upon the entry of a person anywhere into the room and upon exit

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from the room or upon movement of an individual within the room." An approved security cabinet is one that is designed to afford protection against surreptitious entry and lock manipulation and which has been approved by the General Services Administration or other standardizing organization (e.g., ANSI) as being equivalent to a class 6 GSA rating or better.

A vault-type room, by definition, must be protected by motion detection equipment. This is considered a valid tradeoff for the physical barrier protection offered by the security cabinet. The vault-type room can be a locked laboratory, a supply room, or closet equipped with a tamper-resistant motion detector device. The motion detector generally would also satisfy the monitoring requirement addressed in Chapter 2 of this guide, depending upon the site-specific considerations. By "equivalent to a vault-type room" is meant that a piece of equipment (such as a fission chamber, reactor core, or storage rack) even though it does not resemble a "room" may meet the storage requirement if there is a means of controlling access to it (e.g., locked grill, inaccessibility beneath water as in a storage pool, etc.) and it is protected with a tamper-resistant motion detection system.

The illumination level required for the CAA should be sufficiently uniform and bright to detect penetration of or tampering with the CAA (e.g., approved security cabinet) or unauthorized penetration of or activities within the CAA (e.g., vault-type room).

#### Content

Describe in detail the CAA in which the material will be stored. To be included in this description is information on the type of barriers surrounding the material, the portals that allow access to the material, the size of the area, the type of CAA (e.g., vault-type room, vault, security cabinet, etc.), and the location and level of lighting provided that will allow detection of unauthorized penetration or activities. If a vault-type room is used to store the material, describe in Chapter 2, Section 1 the type of intrusion alarm system used there. If a security cabinet is used, describe in Chapter 3, Section 3, the type of locking system used.

#### CHAPTER 2 DETECTION DEVICES OR PROCEDURES

This chapter provides the following guidance for meeting the requirement of 73.47(d)(3):

- (d)(3) Monitor with an intrusion alarm or other device or procedures the controlled access areas to detect unauthorized penetration or activities.

In order to help detect unauthorized activities or penetrations of CAAs where the material is used or stored either intrusion alarms or other devices or security procedures are needed. Section 2.1 provides guidance if the licensee chooses to use intrusion alarms or devices and Section 2.2 provides guidance if he chooses to use security procedures.

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## 2.1 DETECTION DEVICES (73.47(d)(3))

### Intent

For CAAs where the material is used, the licensee will probably wish to rely upon personnel-oriented procedures for assuring that the CAA is not penetrated inadvertently or purposefully by unauthorized personnel while the material is in use. However, material left temporarily unattended should be protected by a motion detector (e.g., suspended from above) which incorporates adequate tamper-resistant features. Licensees should design their system to minimize the rate of spurious or false alarms through proper installation and procedures.

For CAAs where the material is stored, the detection capability will be satisfied through the use of motion detection equipment. However, the detection capability requirement may also be satisfied by different types of safety detection devices or security procedures. Information regarding intrusion alarm devices which could be used is available in NUREG 0320, "Interior Intrusion Alarm Systems." However, any choice of detection device, intrusion or safety, must include tamper-resistant features.

### Content

Describe, if applicable, the tamper-resistant intrusion alarm devices or tamper-resistant safety devices which are used to monitor the CAA where the material is used and stored. Included in this description should be:

- a. type of device used with brief theory of operation
- b. location of detection device
- c. type and location of annunciation
- d. area of coverage
- e. tamper-resistant features
- f. signal line protection features
- g. emergency power features for devices
- h. conditions under which detection device will be used.

## 2.2 DETECTION PROCEDURES (73.47(d)(3))

### Intent

Licensees may choose to provide the required detection capability during certain periods through reliance on personnel-oriented procedures rather than by the use of detection devices. This may be desirable during periods of heavy usage of material when frequent traffic into and out of a CAA may make the use of an intrusion alarm system inconvenient. Authorized personnel engaged in the use of the material or otherwise present within the CAA or its immediate vicinity may satisfy the detection capability requirement provided they can reasonably maintain surveillance over the material and control access to the CAA or its immediate vicinity while carrying

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on whatever other activities they may be engaged in. At least one authorized person should be present at all times in the absence of detection devices while the material is in use.

If the material is in storage in an approved security cabinet or its equivalent, the material may be left unattended without an intrusion alarm system provided some other detection procedure is employed. This may include remote surveillance, using a closed circuit television system or randomized periodic patrols by a watchman or campus police.

#### Content

Describe, if applicable, the procedures which are used or may be used to monitor the controlled access areas where the material is used or stored. These descriptions should include: the conditions under which the procedures would be used; the CAAs for which the procedures would be used; individuals, categories of individuals or personnel positions assigned to carry out procedures; devices used in conjunction with the procedures; other assignments or activities to be performed by personnel concurrently with their execution of detection procedures; provisions for documentation of inspection procedures being executed (e.g., log); description of the procedures themselves; and any techniques employed for randomization of patrols.

### CHAPTER 3. ACCESS CONTROL

This chapter provides guidance on meeting the requirements of paragraphs 73.47(d)(4), (d)(5), (d)(6), (d)(7), and (d)(10) which are as follows:

- (d)(4) Conduct screening prior to granting an individual unescorted access to the controlled access area where the material is used or stored, in order to obtain information on which to base a decision to permit such access.
- (d)(5) Develop and maintain a controlled badging and lock system to identify and limit access to controlled access areas to authorized individuals.
- (d)(6) Limit access to the controlled access areas to authorized or escorted individuals who require such access in order to perform their duties.
- (d)(7) Assure that all visitors to the controlled access areas are under the constant escort of an individual who has been authorized access to the area.
- (d)(10) Search on a random basis vehicles and packages leaving the controlled access areas.

#### 3.1 PREAUTHORIZATION SCREENING (73.47(d)(4))

#### Intent

The intent of the requirement for preauthorization screening is to assure that the licensee will have sufficient knowledge of an individual to determine his reliability and need for access

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prior to granting him authorized access to the CAA where the material is used or stored. The selection of procedures for conducting this examination and the criteria he employs to make his judgments are the responsibility of the licensee, and of course should be consistent with all local, state and federal laws and regulations regarding the protection of the privacy and other rights of the individual. The screening process may be conducted in the same manner as other investigations customarily conducted by potential employers for similarly sensitive positions. There is no requirement for the licensee to arrange for an NRC clearance or similar clearance from any other government organization. Examples of procedures and criteria which may be employed in the screening process include: holding of or having recently held a government sanctioned clearance; examination of past employment or educational record (to determine any unsatisfactory employment or school actions or incidents which would indicate any unreliability or previous breaches of trust between the individual and his employer); endorsements or references from previous employers, teachers, or colleagues which would support the need for access, trustworthiness and reliability of the individual; and consideration of the individual's present employment record indicating demonstrated trustworthiness and reliability over an extended period of employment with the licensee. (This may be considered in the nature of "grandfathering.")

#### Content

Describe the procedures and criteria that will be used for obtaining sufficient information needed prior to making a decision on granting unescorted access or authorization to an individual to CAAs where the material is used or stored. Identify the types of individuals who will be screened (e.g., process engineers, supervisory personnel, professors, instructors, graduate students, etc.) and who will perform the screening process.

### 3.2 BADGING SYSTEM (73.47(d)(5))

#### Intent

The purpose of the badging system is to facilitate access control of authorized individuals into or within the CAA where the material is used or stored. Information on the badge should be such that it is possible to clearly distinguish personnel authorized access to the CAAs from those requiring an escort. Information on the badge should also uniquely identify the individual possessing the badge. This personalized information can be obtained through the use of photographs, personal vital statistics, signatures, or any means the licensee may wish to use that will uniquely identify the individual.

#### Content

Describe the badging system used to facilitate control of access to the CAAs. This description should include

- a. the size, shape, color and material construction of the badge;
- b. the distinguishing features of the badge that identify authorized individuals from escorted individuals.

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- c. how the badges will be used for controlling access. (For example, will all individuals be checked prior to entering the CAAs or will periodic checks be made of individuals within a CAA to determine if they are authorized or under escort or will the badge itself permit authorized entrance such as a card key.)
- d. the system used for issuing, controlling, and accounting for the badges.

### 3.3 LOCK SYSTEM (73.47(d)(5))

#### Intent

Locks used to control access to CAAs should be resistant to manipulation or picking, and should not be mastered. Examples of typical lock systems which fit this description are: three-position dial-type combination locks, six-pin key locks, and card-key lock systems. The procedures for assigning keys and combinations to individuals is an integral part of the lock system and should be designed to assure that only authorized personnel have access to such items. Locks and combinations should be changed when information is obtained that the lock system may have been compromised. Further information may be obtained in Regulatory Guide 5.12, "General Use of Locks in the Protection and Control of Facilities and Special Nuclear Material."

#### Content

Describe the system for the locking system used to control access to the CAAs where material is used and stored. This description should include: locations of all locks included in the system by type of lock; the pick-resistant and manipulation-resistant characteristics of each lock type used; personnel responsible for issuing keys or combinations and changing combinations or locks; criteria for changing combinations or locks; personnel authorized to be given keys or combinations; and descriptions of types of locks used (references may be made to Regulatory Guide 5.12 for this purpose).

### 3.4 ACCESS CONTROL DESCRIPTION (73.47(d)(5))

#### Intent

The success of other access control system components, such as preauthorization screening, badging, and lock control, is dependent upon effective control of personnel access into the CAA. Physical access may be controlled in a number of different ways depending upon the actual configuration of the CAA and other site specific factors. Some examples of these alternatives are:

#### a. Control by Authorized Person

If the area to be controlled is sufficiently small and free of obstructions, an authorized person performing other activities in a CAA may effect physical access control by monitoring entry into the area of unauthorized persons. A sign posted at the entrance would help deter casual passers-by. A typical application of this approach would be the case of a laboratory instructor conducting a class in which he is familiar with each of his students and could easily recognize unauthorized persons not in the class.

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b. Card Key, Combination or Key Lock Control System

A more sophisticated, hardware oriented system involves the use of a card key, combination or key lock system. Physical access control in this case consists of the use of physical barriers to deter unauthorized persons. A limited number of entrances are provided which are controlled by authorized personnel using a card key combination or key. This system may be more useful when larger numbers of authorized personnel, who would not necessarily be familiar with one another, would need to share the use of the CAA.

c. Control by Security Organization

If security organization personnel are available, physical access control may be accomplished by stationing a person at the entrance to the CAA to check identification and allow only authorized persons into the CAA. This alternative may be unjustifiably expensive unless the security organization member's salary can be justified on other grounds as well. A variation of this system requires persons seeking entrance to the CAA to obtain a key from a properly designated person or security organization for each use.

Content

Describe the system for limiting physical access to each CAA identified in Sections 1.1 and 1.2 to only authorized personnel or those escorted by authorized personnel. Include in this description the names or titles of individuals granting access authorizations, the criteria to be used in granting authorizations, the procedures used to assure only authorized or properly escorted persons are allowed access to the CAA. Reference can be made to Sections 3.1, 3.2, 3.3, 3.5, and 3.6 of this chapter as they affect this section, to the descriptions of lock, barriers, or other hardware which are used to control access.

3.5 ESCORT SYSTEM DESCRIPTION (73.47(d)(7))

Intent

The intent of requiring that an escort system be established is in recognition of the fact that the licensee may wish to allow access to certain persons or classes of persons on a temporary or infrequent basis, or on short notice, thus making the routine process for granting access authorizations impractical or inexpedient. Typical arrangements for escorted access may include escorts for maintenance or repair personnel, laboratory classes, public tours, guests and visitors as required.

Content

Describe the system that will be used to escort individuals in the CAAs. In his security plan, the licensee should assure that only properly authorized individuals will be allowed to escort individuals. This description should include:

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- a. criteria to be used for granting escorted access,
- b. criteria to be used for escorting others,
- c. procedures for escorting individuals into CAAs (e.g., students under supervision of lab instructor, public tours, etc.),
- d. the number of escorted individuals per escort, and
- e. the responsibilities of the escort (e.g., periodic surveillance of all individuals under escort, accounting for all material prior to leaving the CAA, remaining in general area during the time unauthorized individuals are present, etc.).

### 3.6 SEARCH DESCRIPTION (73.47(d)(10))

#### Intent

The primary intent of the search requirement is to deter and possibly detect attempted thefts of SNM. The search procedures developed by the licensee should take into consideration the environment where the material is used or stored, the physical characteristics of the material itself, and the frequency of accounting for the material. In some cases, this will require that all vehicles and packages leaving the CAAs be searched in a random manner. The frequency of randomness should be determined by the ease with which the material can be stolen and the length of time it would take to detect a theft. In other cases only packages which equal or exceed the size of the material being used or stored would have to be searched, taking into consideration the difficulty with which the material could be broken into smaller more easily concealed parts.

#### Content

Describe the system to be used for randomly searching vehicles or packages that leave the CAA. Included in the description should be information as to

1. the scope of the search -

the criteria that will be used for searching vehicles and packages (e.g., whether all packages and vehicles are subject to search or just those packages or vehicles which are larger than the smallest configuration of material being used or stored).

2. the randomness of the search -

the randomness can vary from subjecting each package or vehicle to a search, to using a random number generator for determining whether a candidate package or vehicle is to be searched, to searching a minimum percentage of all packages or vehicles leaving each day from the CAA.

### CHAPTER 4 SECURITY ORGANIZATION DESCRIPTION

This chapter provides guidance on meeting the requirements of paragraph 73.47(d)(8) which states:

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- (d)(8) Establish a security organization or modify the current security organization to consist of at least one watchman\* per shift able to assess and respond to any unauthorized penetrations or activities in the controlled access areas.

#### 4.1 SECURITY ORGANIZATION (73.47(d)(8))

##### Intent

The intent of this requirement is to assure that in the event of a security incident someone will be available to assess alarms or other unauthorized penetrations or activities and, if warranted, notify the NRC, the local law enforcement authorities, and the responsible person in licensee management. Early detection and notification of any missing material will help facilitate its prompt recovery. In some cases the licensee may assign additional duties to members of the security organization, where procedurally oriented options are chosen to satisfy physical protection requirements (e.g., periodic patrols and inspections of CAAs for storage of SNM). Security organization members are not required to be fully dedicated, full time employees of the licensee. They may include unarmed campus security personnel,\* contract guards, members of the local law enforcement agency (if sufficiently close to the site), etc. No formal or comprehensive training program is required for security organization personnel. However, under 10 CFR Part 73, Appendix B, the licensee should be prepared to demonstrate that each security person understands and is fully qualified and trained to perform those particular duties assigned to him.

##### Content

Describe the security organization which will be responsible for assessing and responding to security incidents. Indicate the other responsibilities of the security organization such as:

- a. conducting periodic physical security checks of CAAs,
- b. maintaining liaison with the local law enforcement agency,
- c. notifying the local law enforcement agency of any unauthorized penetrations or activities in the CAAs, and
- d. notifying licensee management of any unauthorized penetrations or activities in the CAAs.

#### CHAPTER 5 COMMUNICATIONS

This chapter provides guidance on meeting the requirements of paragraph 73.47(d)(9) which states:

- (d)(9) Provide a communication capability between the security organization and appropriate response force.

\* A "watchman" is defined in 10 CFR Part 73.2 as "an individual, not necessarily uniformed or armed with a firearm, who provides protection for a plant and the special nuclear material therein in the course of performing other duties."

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## 5.1 COMMUNICATION SYSTEM DESCRIPTION (73.47(d)(9))

### Intent

The intent of this regulation is to assure that a communication capability exists between the licensee and the designated response force. It is implied that prior to setting up a communication capability, procedures and responsibilities will have been established between the response force and the licensee. (Note: see Chapter 6 Response Procedures.) The type of communication system chosen by a licensee should:

- a. provide for a full duplex voice communication capability,
- b. be easily accessible to the licensee's security organization, and
- c. be reliable and available for immediate use at any time.

Some communication systems which would provide these capabilities are: dedicated telephone system, non-dedicated public telephone system, radio, or any combination thereof.

### Content

Describe the communication system which is used between the security organization and the appropriate response force. Included in this description should be information on:

- a. type of communication system,
- b. location of voice terminals in relationship to CAAs,
- c. availability of communication system on a 24-hour basis, and
- d. reliability of communication system.

## CHAPTER 6 RESPONSE PROCEDURES

This chapter provides guidance on meeting the requirements of paragraph 70.47(d)(11) which states:

- (d)(11) Establish and maintain response procedures for dealing with threats of thefts or thefts of such materials.

## 6.1 RESPONSE PROCEDURES DESCRIPTION (73.47(d)(11))

### Intent

The intent of this regulation is to help the licensee identify those security incidents which could result in the loss of SNM of moderate strategic significance and to develop response procedures to prevent or reduce the likelihood of such a loss. Some types of incidents which should be considered and for which response procedures should be developed are:

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- a. civil strife such as student demonstrations or employee strikes,
- b. fire,
- c. discovery that some SNM is missing, and
- d. bomb threats.

Content

Identify those events for which response procedures will be developed. Also describe the type of response to be accomplished for each event identified and the duties and responsibilities of the security organization and management involved in the response. Assure that the NRC will be notified immediately in the event of theft or attempted theft of the material. Describe what local law enforcement assistance is available, their response capabilities, and any agreements made with them to respond in the case of theft of the material.

CHAPTER 7 MATERIAL TRANSPORTATION REQUIREMENTS

This chapter provides guidance on meeting the requirements of paragraph 73.47(e)(1) which are as follows:

- (1) Each licensee who transports, exports, or delivers to a carrier for transport special nuclear material of moderate strategic significance shall:
  - (i) Provide advance notification to the receiver of any planned shipment specifying the mode of transport, estimated time of arrival, location of the nuclear material transfer point, name of carrier and transport identification,
  - (ii) Receive confirmation from the receiver prior to the commencement of the planned shipment that the receiver will be ready to accept the shipment at the planned time and location and that he acknowledges the specified mode of transport,
  - (iii) Transport the material in a tamper indicating sealed container,
  - (iv) Check the integrity of the containers and seals prior to shipment, and
  - (v) Arrange for the in-transit physical protection of the material in accordance with the requirements of paragraph 73.47e(3) of this part, unless the receiver is a licensee and has agreed by written contract to arrange for the in-transit physical protection.

7.1 ADVANCE NOTIFICATION DESCRIPTION (73.47(e)(1)(i))

Intent

It is the intent of this section that the shipper will have preplanned the transportation of the material and informed the receiver of his plans prior to shipment. This is the first of

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the several transportation requirements that will allow the receiver to take delivery of the material as planned or to help assure traceability of any missing material that might occur.

Content

The licensee should assure, in his security plan, that prior to each shipment of material, notification of the impending shipment will be given to the receiver providing him with the following types of information:

- a. mode of transport (e.g., truck, plane, train or ship),
- b. estimated time of arrival,
- c. location where material is to be transferred to receiver,
- d. name of carrier, and
- e. transport identification (e.g., truck, train, or flight number, ship name, etc.).

7.2 RECEIVER CONFIRMATION DESCRIPTION (73.47(e)(1)(ii))

Intent

It is the intent of this requirement that prior to shipment the shipper will be assured that the receiver is ready to accept the shipment at the planned time and location and acknowledges the mode of transport.

Content

Describe what procedures will be used to assure that shipment of material does not take place until the receiver acknowledges the planned shipment and mode of transport, and that he will be ready to accept the shipment at the planned time and location.

7.3 CONTAINER DESCRIPTION (73.47(e)(1)(iii))

Intent

The intent of this requirement is to provide a mechanism or system that will help the receiver detect any tampering that may have occurred with the material's container during shipment. Regulatory Guide 5.15 entitled, "Security Seals for the Protection and Control of Special Nuclear Material," is available from the NRC for guidance in this area. Requirements for containers are contained in 10 CFR Part 71 and a summary report of approved containers is in NUREG-0383.

Content

Describe the types of seals that will be used to monitor the material's container during transport.

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7.4 INSPECTION DESCRIPTION (73.47)(e)(iv))

Intent

It is the intent of this requirement that the shipper check the integrity of the material container's seals just prior to shipment, so that he can be assured that they haven't been compromised. Then, if upon receipt of the shipment, the receiver discovers the container's integrity has been compromised and the material missing, the scope of the recovery operation can focus on the transportation route.

Content

Describe the procedures to be used to assure that the integrity of the containers or seals is checked just prior to shipment.

7.5 IN-TRANSIT PHYSICAL PROTECTION (73.47)(e)(1)(v))

Intent

It is the intent of this requirement that either the shipper or receiver be made responsible for the physical protection of the material while it is in transit and that the responsible licensee has acknowledged this responsibility by written agreement.

Content

In his security plan, the shipper should either acknowledge responsibility for the in-transit physical protection of SNM of moderate strategic significance, or assure that written agreement from the receiver licensee has been received in which the receiver either accepts full responsibility or shared responsibility for the in-transit physical protection of this material according to 10 CFR Part 73.47e(3).

CHAPTER 8 RECEIVER REQUIREMENTS

This chapter provides guidance on meeting the requirements of paragraph 73.47(e)(2) which are as follows:

- (e)(2) Each licensee who receives special nuclear material of moderate strategic significance shall:
- (i) Check the integrity of the containers and seals upon receipt of the shipment, and
  - (ii) Notify the shipper of receipt of the material as required in 70.54 of Part 70 of this chapter.

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(iii) Arrange for the in-transit physical protection of the material in accordance with the requirements of paragraph 73.47e(3) of this part unless the shipper is a licensee and has agreed in writing to arrange for the in-transit physical protection.

8.1 INSPECTION DESCRIPTION (73.47(e)(2)(i))

Intent

This requirement is intended to determine whether the material's container has been compromised enroute and whether any material has been removed so that immediate recovery procedures can be initiated, if required.

Content

Describe the procedures to be used to assure that the integrity of the containers and seals will be checked upon receipt of the shipment of material.

8.2 NOTIFICATION DESCRIPTION (73.47(e)(2)(ii))

Intent

This requirement is intended to:

- a. allow that knowledge of the current location of all SNM is available, and
- b. formally inform the shipper that the material has been received.

Content

Assure that a completed copy of standard Form NRC-741, "Nuclear Material Transaction Report," will be sent to the shipper within (10) days of receiving a shipment of material as required in § 70.54 of Part 70 of 10 CFR.

8.3 IN-TRANSIT PHYSICAL PROTECTION (73.47(3)(2)(iii))

Intent

It is the intent of this requirement that either the licensee receiver or shipper be made responsible for the physical protection of the material while it is in transit and that the responsible person has acknowledged this responsibility by written agreement.

Content

In his security plan, the receiver should either acknowledge responsibility for the in-transit physical protection of SNM of moderate strategic significance or assure that written agreement

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from the shipper has been received in which the shipper either accepts full responsibility or shared responsibility for the in transit physical protection of this material according to 10 CFR Part 73.47e(3).

#### CHAPTER 9 IN-TRANSIT PHYSICAL PROTECTION REQUIREMENTS

This chapter provides guidance on meeting the requirements of paragraph 73.47(e)(3) which are as follows:

- (e)(3) Each licensee, either shipper or receiver, who arranges for the physical protection of special nuclear material of moderate strategic significance while in transit or who takes delivery of such material free on board (f.o.b.) the point at which it is delivered to a carrier for transport shall:
- (i) Arrange for a telephone or radio communications capability, for notification of any delays in the scheduled shipment, between the carrier of the material and the shipper or receiver,
  - (ii) Minimize the time that the material is in transit by reducing the number and duration of nuclear material transfers and by routing the material in the most safe and direct manner.
  - (iii) Conduct screening of all licensee employees involved in the transportation of the material in order to obtain information on which to base a decision to permit them control over the material,
  - (iv) Establish and maintain response procedures for dealing with threats of thefts or thefts of such material,
  - (v) Make arrangements to be notified immediately of the arrival of the shipment at its destination, or of any such shipment that is lost or unaccounted for after the estimated time of arrival at its destination, and
  - (vi) Conduct immediately a trace investigation of any shipment that is lost or unaccounted for after the estimated arrival time and report to the Nuclear Regulatory Commission as specified in § 73.71 and to the shipper or receiver as appropriate. The licensee who made the physical protection arrangements shall also immediately notify the Director of the appropriate Nuclear Regulatory Commission Inspection and Enforcement Regional Office listed in Appendix A of the action being taken to trace the shipment.

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9.1 COMMUNICATIONS DESCRIPTION (73.47(e)(3)(i))

Intent

The primary intent of this requirement is to assure that the carrier will notify the shipper or receiver of any changes in plans or delays in the scheduled arrival of a shipment to its destination due to mechanical breakdown, adverse environmental conditions, public disorders, etc. The shipper or receiver can then decide whether or not to initiate response procedures. The intent of this regulation is not to require periodic check-in. Public telephone or full duplex voice radio are acceptable methods for meeting the intent of this requirement.

Content

Describe the type of communication system and procedures to be used by the carrier of SHM of moderate strategic significance for notifying the shipper or receiver of any change in plans or delays in arrival.

9.2 MINIMUM TRANSIT TIMES DESCRIPTION (73.47(e)(3)(ii))

Intent

This requirement is intended to have the shipper or receiver make a reasonable effort to ship the material in the fastest and most direct method possible. It is not intended to necessarily require exclusive-use carriers or expensive modes of travel.

Content

Describe the procedures and considerations which apply in the transportation planning process which assure that a determined effort will be made to minimize transit times.

9.3 PREAUTHORIZATION SCREENING (73.47(e)(3)(iii))

Intent

The intent of the requirement for preauthorization screening is to assure that the licensee will have sufficient knowledge of an individual to determine his reliability and need for access prior to granting him authorized access to the material in transit. The selection of procedures for conducting this examination and the criteria he employs to make his judgments are the responsibility of the licensee, and of course should be consistent with all local, State and Federal laws and regulations regarding the protection of the privacy and other rights of the individual. The screening process may be conducted in the same manner as other investigations customarily conducted by potential employers for similarly sensitive positions. There is no requirement for the licensee to arrange for an NRC clearance or similar clearance from any other government organization. Examples of procedures and criteria which may be employed in the screening process include: holding of or having recently held a government sanctioned clearance

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examination of past employment record (to determine any unsatisfactory employment or incidents which would indicate any unreliability or previous breaches of trust between the individual and his employer); endorsements or references from previous employers or colleagues which would support the need for access, trustworthiness, and reliability of the individual; and consideration of the individual's present employment record indicating demonstrated trustworthiness and reliability over an extended period of employment with the licensee. (This may be considered in the nature of "grandfathering.")

Content

Describe the procedures that will be used for obtaining sufficient information prior to making a decision on granting unescorted access authorization to those licensee employees who will be involved in the transportation of the material. Identify by title or name those employees who will be screened and those who will perform the screening process.

9.4 RESPONSE PROCEDURES DESCRIPTION (73.47(e)(3)(iv))

Intent

The intent of this regulation is to help the licensee identify those transportation incidents for which he might expect to be notified and which might affect the security of the SNM in transit and to plan response procedures for such situations. For example, if the shipper is informed by the carrier that adverse weather conditions have temporarily prevented further progress of the shipment, the licensee should inform the receiver of a new estimated time of arrival.

Content

Identify those events for which response procedures will be developed. Also describe types of response to be accomplished for each event identified and the duties and responsibilities of members of the security organization and management for dealing with the response. Assure that the NRC will be notified immediately in the event of theft or attempted theft of the material.

9.5 NOTIFICATION DESCRIPTION (73.47(e)(3)(v))

Intent

The intent of this requirement is to assure that the licensee responsible for the physical protection of SNM in transit will have a firm basis for deciding whether or not to initiate response procedures in the event a shipment becomes overdue or is lost.

Content

Describe the arrangements and procedures which will be used for notifying the licensee who arranges for the physical protection of material in transit of the arrival of the shipment at

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its destination, or of any such shipment that is lost or unaccounted for after the estimated time of arrival at its destination.

#### 9.6 LOST MATERIAL NOTIFICATION (73.47(e)(3)(vi))

##### Intent

The intent of this requirement is to assure that in case a shipment becomes overdue, and no reasonable explanation has been received from the carrier regarding its status, a trace investigation will be conducted to locate the missing SNM. The NRC is to be notified at this time that the material is missing and informed as to what steps are being taken to recover the missing material. Although the licensee is responsible for notifying the NRC of any missing material and to initiate and assist in the subsequent investigation, the law enforcement agencies bears the responsibility for physically recovering the material.

##### Content

Describe what procedures will be used to trace any shipment that is lost or has not arrived by the estimated arrival time. Assure that all lost or missing material will be immediately reported to the appropriate NRC Regional Office along with what actions are being taken to trace the shipment, that the NRC will be notified as specified in § 73.71 and that the shipper or receiver, as appropriate, will also be notified.

### CHAPTER 10 EXPORT REQUIREMENTS

This chapter provides guidance on meeting the requirements of paragraph 73.47(e)(4) which reads as follows:

- (e)(4) Each licensee who exports special nuclear material of moderate strategic significance shall comply with the requirements specified in § 73.47(c), (e)(1) and (e)(3).

#### 10.1 SECURITY DESCRIPTIONS (73.47(e)(4))

Chapters 7 and 9 of this guide to describe the security procedures which will be used to protect the material up to the point where the receiver accepts physical protection responsibility for the shipment.

### CHAPTER 11 IMPORT REQUIREMENTS

This chapter provides guidance on meeting the requirements of paragraph 73.47(e)(5) which reads as follows:

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(e)(5) Each licensee who imports special nuclear material of moderate strategic significance shall:

(i) Comply with the requirements specified in § 73.47(c), (e)(2) and (e)(3), and

(ii) Notify the exporter who delivered the material to a carrier for transport of the arrival of such material.

#### 11.1 SECURITY REQUIREMENTS (73.47(e)(5)(i))

Use Chapters 8 and 9 of this Standard Format to describe the security procedures which will be used to protect the material from the first point where the shipment is picked up inside the United States.

#### 11.2 NOTIFICATION (73.47(e)(5)(ii))

##### Intent

The intent of this requirement is to notify the exporter that the material has arrived safely.

##### Content

Describe the procedures to be used for notifying the exporter of the material that the shipment has been received.

### PART II: SNM OF LOW STRATEGIC SIGNIFICANCE

#### CHAPTER 12 USE AND STORAGE AREA DESCRIPTION

This chapter provides guidance on meeting the requirement of paragraph 73.47(f)(1) which is as follows:

(f)(1) Store or use such material only within a controlled access area.

A controlled access area is defined in 73.2 paragraph (z) as, "any temporarily or permanently established clearly demarcated area, access to which is controlled and which affords isolation of the material, equipment or persons within it." Thus a CAA can be an approved security cabinet with lock to which only authorized individuals have the combination or key or a vault or vault-type room which uses some type of access control system to limit access to authorized individual or a locked laboratory for which only authorized individuals such as professors or lab instructors have the combination or key.

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## 12.1 AREA WHERE MATERIAL IS USED (73.47(f)(1))

### Intent

Temporarily established CAAs for the use of SNM need not have permanent type physical barriers at their boundaries. Office partitions, cordons or other devices can be used to warn passers-by of the restricted nature of the area, while access control can be effected through surveillance or supervision of the area by those using the SNM at the time. However, if the material is to be left unattended in such an area, additional protection must be provided to control access and assure a detection capability in the absence of authorized personnel. This could be accomplished, for example, through the posting of signs and the use of motion detection equipment covering the immediate area in which the SNM is located. Although the material may be considered in "use," protection requirements would be the same as though the material were in storage, since authorized personnel would not be present.

Permanently designated areas for the use of SNM would more closely approximate CAAs intended for the storage of SNM. In this case, permanent type physical barriers would be a more likely choice, such as would be provided in the case of a laboratory or reactor containment structure, in which it was desired to have SNM continually present and in use. Such an area may also serve as a storage area. Although access control and detection capabilities may be provided through the use of appropriate hardware during the period when SNM is stored in this area, other means of providing these capabilities may be required to complement such hardware in the case that alarms are deactivated or doors unlocked, etc. In such cases, licensees may rely upon authorized personnel to effect the required protection.

### Content

Describe the Controlled Access Area (CAA) where the material will be used. To be included in this description is information on the type of barriers surrounding the CAA, the portals that allow access to the CAA, and the size of the area. Some typical CAAs where the material may be used are: laboratories, process areas, reactor rooms, spent fuel pools, or fenced-in areas.

## 12.2 AREA WHERE MATERIAL IS STORED (73.47(f)(1))

### Intent

This area may be similar to that required for the storage of special nuclear material of moderate strategic significance (see Chapter 1, Section 1.2 of this Guide), but does not necessarily have to be equivalent to a vault, vault-type room, or approved security cabinet. Examples of typical CAAs where special nuclear material of low strategic significance may be stored are:

1. Vault - has barriers sufficiently strong to prevent or deter penetration and a locking mechanism on the door.

2. Approved Security Cabinets - cabinets which are GSA approved, class 6 or greater, or other testing group approved for protection against surreptitious entry and lock manipulation.
3. Reactor - the reactor is so designed that it does not allow for easy removal of material.
4. Vault-type Room - some typical vault-type rooms where materials are stored and protected with a motion detector are storage pools, rooms containing in-process storage racks and laboratories where material is left unattended. In all cases movement in the near-vicinity of the material should generate an alarm signal.
5. Locked laboratories or Supply Rooms - these areas must be sufficiently penetration resistant to afford a means of access control and permit the proper functioning of the system for monitoring of the storage area as required under § 73.47(f)(2) of the rule as described in Chapter 13 of this guide.

#### Content

Describe in detail the CAA in which the material will be stored. To be included in this description is information on the type of barriers surrounding the material, the portals that allow access to the material, the size of the area, and the locking mechanism used to secure the material (see Chapter 3 of this guide for guidance on locking mechanisms).

### CHAPTER 13 DETECTION DEVICES OR PROCEDURES

This chapter provides guidance for meeting the requirement of 73.47(d)(3) which is as follows:

- (f)(2) Monitor with an intrusion alarm or other device or procedures the controlled access areas to detect unauthorized penetration or activities.

In order to help detect unauthorized activities or penetrations of CAAs where the material is used or stored either intrusion alarms or other devices or security procedures are needed. Section 13.1 provides guidance if the licensee chooses to use intrusion alarms or devices and Section 13.2 provides guidance if he chooses to use security procedures.

#### 13.1 DETECTION DEVICES (73.47(f)(2))

##### Intent

For CAAs where the material is used the licensee will probably wish to rely upon personnel-oriented procedures for assuring that the CAA is not penetrated inadvertently or purposefully by unauthorized personnel. However, material left temporarily unattended should be protected by a motion detector (e.g., suspended from above) which incorporates adequate tamper resistant features. Licensees should design their system to minimize the rate of spurious or false alarms through proper installation and procedures.

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For CAAs where the material is stored, the detection capability will be satisfied through the use of motion detection equipment. However, the detection capability requirement may also be satisfied by different types of safety detection devices or security procedures. Information regarding intrusion alarm devices which could be used is available in NUREG 0320, "Interior Intrusion Alarm Systems." However, any choice of detection device, intrusion or safety, must include tamper-resistant features.

#### Content

Describe the tamper-resistant intrusion alarm devices or tamper-resistant safety devices which are used to monitor the controlled access areas (CAA) where the material is used and stored. Included in this description should be:

- a. type of device used with brief theory of operation,
- b. location of detection device,
- c. type and location of annunciation,
- d. area of coverage,
- e. tamper-resistant features,
- f. signal line protection features,
- g. emergency power features for devices, and
- h. conditions under which detection devices will be used.

### 13.2 DETECTION PROCEDURES (73.47(f)(2))

#### Intent

Licenseses may choose to provide the required detection capability during certain periods through reliance on personnel-oriented procedures rather than by the use of detection devices. This may be desirable during periods of heavy usage of material, when frequent traffic into and out of a CAA may make the use of an intrusion alarm system inconvenient. Authorized personnel engaged in the use of the material or otherwise present within the CAA or its immediate vicinity may satisfy the detection capability requirement provided they can reasonably maintain surveillance over the material and control access to the CAA or its immediate vicinity while carrying on the other activities they may be engaged in. At least one authorized person should be present at all times in the absence of detection devices while the material is in use.

If the material is in storage in an approved security cabinet or its equivalent, the material may be left unattended without an intrusion alarm system provided some other detection procedure is employed. This may include remote surveillance, using a closed-circuit television system, or randomized periodic patrols by a watchman.

#### Content

Describe, if applicable, the procedures which are used or may be used to monitor the controlled access areas where the material is used or stored. These descriptions should include:



the conditions under which the procedures would be used; the CAAs for which the procedures would be used; individuals, categories of individuals, or personnel positions assigned to carry out procedures; devices used in conjunction with the procedures; other assignments or activities to be performed by personnel concurrently with their execution of detection procedures; provisions for documentation of inspection procedures being executed (e.g. log); and description of the procedures themselves.

#### CHAPTER 14 SECURITY RESPONSE

This chapter provides guidance on meeting the requirement of paragraph 73.47(f)(3) which is as follows:

- (f)(3) Assure that a watchman or offsite response force will respond to all unauthorized penetrations or activities.

##### 14.1 SECURITY (73.47(f)(3))

###### Intent

The intent of this requirement is to assure that in the event of a security incident someone will be available to assess alarms or any unauthorized penetrations or activities and, if warranted, notify the NRC, the local law enforcement authorities, and the responsible person in licensee management. Early detection and notification of any missing material will help facilitate its prompt recovery. For purpose of this regulation, an offsite response force can be a local law enforcement agency or a contract guard service.

###### Content

Describe the security organization which will be responsible for assessing and responding to any unauthorized penetrations or activities. Assure that at least one guard, watchman, or member of an offsite response force will respond to all unauthorized penetrations or security incidents at the CAAs.

#### CHAPTER 15 RESPONSE PROCEDURES

This chapter provides guidance on meeting the requirements of paragraph 70.47(f)(4) which states:

- (f)(4) Establish and maintain response procedures for dealing with threats of thefts or thefts of such materials.

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15.1 RESPONSE PROCEDURES DESCRIPTION (73.47 (f)(4))

Intent

The intent of this regulation is to help the licensee identify those security incidents which could result in the loss of SNM of low strategic significance and to develop response procedures to prevent or reduce the likelihood of such a loss. Some types of incidents which should be considered and for which response procedures should be developed are:

- a. civil strife such as student demonstrations or employee strikes,
- b. fire,
- c. discovery that some SNM is missing, and
- d. bomb threats

Content

Identify those events for which response procedures will be developed. Also describe the type of response to be accomplished for each event identified and the duties and responsibilities of the security organization and management involved in the response. Assure that the NRC will be notified immediately in the event of theft or attempted theft of the material. Describe what local law enforcement assistance is available, their response capabilities and any agreements made with them to respond in the case of theft of the material.

CHAPTER 16 MATERIAL TRANSPORTATION REQUIREMENTS

This chapter provides guidance on meeting the requirements of paragraph 73.47(g)(1) which are as follows:

- (g)(1) Each licensee who transports, exports, or who delivers to a carrier for transport special nuclear material of low strategic significance shall:
- (i) Provide advance notification to the receiver of any planned shipments specifying the mode of transport, estimated time of arrival, location of the nuclear material transfer point, name of carrier and transport identification,
  - (ii) Receive confirmation from the receiver prior to the commencement of the planned shipment that the receiver will be ready to accept the shipment at the planned time and location and that he acknowledges the specified mode of transport,
  - (iii) Transport the material in a tamper-indicating sealed container,
  - (iv) Check the integrity of the containers and seals prior to shipment, and
  - (v) Arrange for the in-transit physical protection of the material in accordance with the requirements of paragraph 73.47(g)(3) of this part, unless the receiver is a

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licensee and has agreed by written contract to arrange for the in-transit physical protection.

16.1 ADVANCE NOTIFICATION DESCRIPTION (73.47(g)(1)(i))

Intent

It is the intent of this section that the shipper will have preplanned the transportation of the material and informed the receiver of his plans prior to shipment. This is the first of the several transportation requirements that will allow the receiver to take delivery of the material as planned or to help assure traceability of any missing material that might occur.

Content

The licensee should assure that prior to each shipment of material, notification of the impending shipment will be given to the receiver giving him the following types of information:

- a. mode of transport (e.g., truck, plane, train or ship),
- b. estimated time of arrival,
- c. location where material is to be transferred to receiver,
- d. name of carrier, and
- e. transport identification (e.g., truck, train, or flight number, ship name, etc.).

16.2 RECEIVER CONFIRMATION DESCRIPTION (73.47(g)(1)(ii))

Intent

It is the intent of this requirement that prior to shipment the transporter will be assured that the receiver is ready to accept the shipment at the planned time and location and acknowledges the mode of transport.

Content

Describe what procedures will be used to assure that shipment of material does not take place until the receiver acknowledges the planned shipment and mode of transport, and assures he will be ready to accept the shipment at the planned time and location.

16.3 CONTAINER DESCRIPTION (73.47(g)(1)(iii))

Intent

The intent of this requirement is to provide a mechanism or system that will help the receiver detect any tampering that may have occurred with the material's container during shipment. Regulatory Guide 5.15 entitled "Security Seals for the Protection and Control of Special Nuclear Material," is available from the NRC for guidance in this area.

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Content

Describe the types of seals that will be used to secure the material's container during transport.

16.4 INSPECTION DESCRIPTION (73.47(g)(1)(iv))

Intent

The intent of this requirement that the shipper check the integrity of the material container's seals just prior to shipment, so that he can be assured that they haven't been compromised. Then if upon receipt of the shipment the receiver discovers the container's integrity has been compromised and the material missing, the scope of the recovery operation can focus on the transportation route.

Content

Describe the procedures to be used to assure that the integrity of the containers or seals is checked just prior to shipment.

16.5 IN-TRANSIT PHYSICAL PROTECTION (73.47(g)(1)(v))

Intent

It is the intent of this requirement that either the shipper or receiver be made responsible for the physical protection of the material while it is in transit and that the responsible person has acknowledged this responsibility by written agreement.

Content

In his security plan, the shipper should either acknowledge responsibility for the in-transit physical protection of SNM of low strategic significance, or assure that written agreement from the receiver has been received in which the receiver either accepts full responsibility or shared responsibility for the in-transit physical protection of this material according to 10 CFR Part 73.47(g)(3).

CHAPTER 17 RECEIVER REQUIREMENTS

This chapter provides guidance on meeting the requirements of paragraph 73.47(g)(2) which are as follows:

- (g)(2) Each licensee who receives special nuclear material of low strategic significance shall:
- (i) Check the integrity of the containers and seals upon receipt of the shipment,

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(ii) Notify the shipper of receipt of the material as required in § 70.54 of Part 70 of this chapter, and

(iii) Arrange for the in-transit physical protection of the material in accordance with the requirements of paragraph 73.47(g)(3) of this part, unless the shipper is a licensee and has agreed in writing to arrange for the in-transit physical protection.

#### 17.1 INSPECTION DESCRIPTION (73.47(g)(2)(i))

##### Intent

This requirement is intended to determine whether the material's container has been compromised enroute and whether any material has been removed, so that immediate recovery procedures can be initiated, if required.

##### Content

Describe the procedures to be used to assure that the integrity of the containers and seals will be checked upon receipt of the material shipment.

#### 17.2 NOTIFICATION DESCRIPTION (73.47(g)(2)(ii))

This requirement is intended to:

- a. allow that knowledge of the current location of all NM is available, and
- b. formally inform the shipper that the material has been received.

##### Content

Assure that a completed copy of standard Form NRC-741, "Nuclear Material Transaction Report," will be sent to the shipper within (10) days of receiving a material shipment as required in § 70.54 of Part 70 of 10 CFR.

#### 17.3 IN-TRANSIT PHYSICAL PROTECTION (73.47(g)(2)(iii))

##### Intent

It is the intent of this requirement that either the receiver or shipper licensee be made responsible for the physical protection of the material while it is in transit and that the responsible licensee has acknowledged this responsibility by written agreement.

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## Content

In his security plan, the receiver should either acknowledge responsibility for the in-transit physical protection of SNM of low strategic significance, or assure that written agreement from the shipper has been received in which the shipper either accepts full responsibility or shared responsibility for the in-transit physical protection of this material according to 10 CFR Part 73.47(g)(3).

### CHAPTER 18 IN-TRANSIT PHYSICAL PROTECTION REQUIREMENTS

This chapter provides guidance on meeting the requirements of paragraph 73.47(g)(3) which are as follows:

- (g)(3) Each licensee, either shipper or receiver, who arranges for the physical protection of special nuclear material of low strategic significance while in transit or who takes delivery of such material free on board (f.o.b.) the point at which it is delivered to a carrier for transport shall:
- (i) Establish and maintain response procedures for dealing with threats of thefts or thefts of such material,
  - (ii) Make arrangements to be notified immediately of the arrival of the shipment at its destination, or of any such shipment that is lost or unaccounted for after the estimated time of arrival at its destination, and
  - (iii) Conduct immediately a trace investigation of any shipment that is lost or unaccounted for after the estimated arrival time and report to the Nuclear Regulatory Commission as specified in § 73.71 and to the shipper or receiver as appropriate. The licensee who made the physical protection arrangements shall also immediately notify the Director of the appropriate Nuclear Regulatory Commission Inspection and Enforcement Regional Office listed in Appendix A of the action being taken to trace the shipment.

#### 18.1 RESPONSE PROCEDURE (73.47(g)(3)(i))

### Intent

The intent of this regulation is to help the licensee identify those transportation incidents that could affect the security of the SNM in transit for which he might expect to be notified and for which response procedures should be planned.

### Content

Identify those events for which response procedures will be developed. Also describe type of response to be accomplished for each event identified and the duties and responsibilities of

the security organization and management involved in the response. Assure that the NRC will be notified immediately in the event of theft or attempted theft of the material.

#### 18.2 NOTIFICATION DESCRIPTION (73.47(g)(3)(ii))

##### Intent

The intent of this requirement is to assure that the licensee responsible for the physical protection of SNM in transit will have a firm basis for deciding whether or not to initiate response procedures in the event a shipment becomes overdue or is lost.

##### Content

Describe the arrangements and procedures which will be used for notifying the licensee who arranges for the physical protection of material in transit of the arrival of the shipment at its destination, or of any such shipment that is lost or unaccounted for after the estimated time of arrival at its destination.

#### 18.3 LOST MATERIAL NOTIFICATION (73.47 (g)(3)(iii))

The intent of this requirement is to assure that in the case a shipment becomes overdue, and no reasonable explanation has been received from the carrier regarding its status, a trace investigation will be conducted to locate the missing SNM. The NRC is to be notified at this time that the material is missing and informed as to what steps are being taken to recover the missing material. Although the licensee is responsible for notifying the NRC of any missing material and to initiate and assist in the subsequent investigation, the law enforcement agencies bear the responsibility for physically recovering the material.

##### Content

Describe what procedures will be used to trace any shipment that is lost or has not arrived by the estimated arrival time. Assure that all lost or missing material will be immediately reported to the appropriate NRC Regional Office along with what actions are being taken to trace the shipment, that the NRC will be notified as specified in § 73.71 and that the shipper or receiver, as appropriate, will also be notified.

### CHAPTER 19 EXPORT REQUIREMENTS

This chapter provides guidance on meeting the requirements of paragraph 73.47(g)(4) which reads as follows:

- (g)(4) Each licensee who exports special nuclear material of low strategic significance shall comply with the requirements specified in § 73.47(c), (g)(1) and (g)(3).

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Enclosure "C"



19.1 SECURITY DESCRIPTIONS (73.47(g)(4))

Use Chapters 16 and 18 of this Standard Format to describe the security procedures which will be used to protect the material up to the point where the receiver accepts physical protection responsibility for the shipment.

CHAPTER 20 IMPORT REQUIREMENTS

This chapter provides guidance on meeting the requirements of paragraph 73.47(g)(5) which reads as follows:

- (g)(5) Each licensee who imports special nuclear material of low strategic significance shall:
- (i) Comply with the requirements specified in § 73.47(c), (g)(2) and (g)(3), and
  - (ii) Notify the exporter who delivered the material to a carrier for transport of the arrival of such material.

20.1 SECURITY REQUIREMENTS (73.47(g)(5)(i))

Use Chapters 17 and 18 of this Standard Format to describe the security procedures which will be used to protect the material from the first point where the shipment is picked up.

20.2 NOTIFICATION (73.47(g)(5)(ii))

Intent

The intent of this regulation is to notify the exporter that the material has arrived safely.

Content

Describe the procedures to be used for notifying the exporter of the material that the shipment was received.

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ENCLOSURE D

VALUE/IMPACT ASSESSMENT CONTAINING A  
REPORT JUSTIFICATION ANALYSIS  
PHYSICAL PROTECTION OF PLANTS AND MATERIALS

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