



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20545

February 22, 1985

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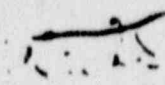
FROM: James G. Partlow, Director
Division of Inspection Programs
Office of Inspection and Enforcement

SUBJECT: REVISION OF IE MC 2545 AND T-E APPLICABLE INSPECTION PROCEDURES

In 1977, IE published the 81400 series of inspection procedures (IPs) for physical protection at nonpower reactor facilities. Due to changing requirements, these procedures were later considered to be obsolete, and Lawrence Livermore Laboratories was contracted to develop IPs to reflect current requirements. The LLL procedures were printed and sent to the Regions in 1980 for interim use; however, because they did not fully satisfy the needs of the inspection program, they were not formally incorporated into the IE manual.

In a related matter, SEC 83-500A (April 20, 1984) specified certain commitments which the staff made to the Commission regarding an adjustment in emphasis from sabotage to theft in the physical protection programs at nonpower reactor facilities. To accommodate this adjustment, the staff agreed to clarify and revise the safeguards inspection program requirements and guidance documentation.

To accomplish this, the staff has recently revised IE manual chapter 2545 and inspection procedures relating to physical protection at nonpower reactor facilities. Section IE.C3 of the chapter discusses verification of the licensee's exempt inventory. A NUREG is being developed to assist in this verification; however, after its publication, IE will decide whether a separate inspection procedure or additional guidance is necessary. Please review these documents and provide comments to Dick Rosano (FTS 49-24006) by March 15, 1985. If you have suggestions that may increase or decrease the time required to complete an inspection, please complete the attached evaluation sheet.


James G. Partlow, Director
Division of Inspection Programs
Office of Inspection and Enforcement

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Enclosures:

- 1. IE Manual Chapter 2545
- 2. Inspection Procedures
- 3. Evaluation Sheet

cc w/enclosures:

- J. H. Joyner, Region I
- K. P. Barr, Region II
- M. L. Axelson, Region III
- R. J. Everett, Region IV
- J. L. Montgomery, Region V
- M. B. Brown, NMSS
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REVIEW OF INSPECTION PROCEDURES

Instructions

Additions to and deletions from inspection procedures may have an impact on the time necessary to complete the inspection procedures. When the reviewer recommends either of the above, it is requested the time lost or gained as a result of those comments be estimated.

The procedure(s) to be reviewed is(are) listed below. The first column shows the expected time required to complete the procedure. The reviewer should fill in the loss (-) or gain (+) of time resulting from the comments in the second column.

If the suggested changes to each procedure would result in a total expenditure of more time than that noted in the first column, the reviewer should indicate in the Discussion section what inspection activities may be deleted to make the time available.

NOTE: Total time less than one half hour need not be counted.

<u>Inspection Procedures</u>	<u>Estimated Time</u>	<u>Gain/Loss of Time Over 1 Hour</u>
81401 Physical Security and Safeguards Contingency Plans	1	
81402 Reports of Safeguards Events	1	
81403 Receipt of New Fuel at Reactor Facilities	1	
81411 Physical Protection for Nonpower Reactors with FSNM	18	
81421 Physical Protection for Nonpower Reactors with MSNM	6	
81431 Physical Protection for Nonpower Reactors with LSNM	2	

TOTAL

Discussion

CHAPTER 2545

RESEARCH AND TEST REACTOR INSPECTION PROGRAM - OPERATIONS PHASE

2545-01 PURPOSE

The purpose of the Research and Test Reactor Inspection Program is to establish a basis for concluding that the facility is operated and activities therein are conducted safely and consistent with regulatory requirements. This conclusion is developed through direct observation, personnel interviews, and review of facility records.

2545-02 PROGRAM APPLICABILITY

The operations phase applies to all critical facilities and to research and test reactors that have been issued an operating license. In the special case in which a facility has an operating license and does not operate, the inspection effort shall be reduced to completion of the long-term shutdown program. A facility shall be considered to be in an operating status if work associated with the reactor is the reason for it being shut down, e.g., refueling, modification, and maintenance.

2545-03 DEFINITIONS*

- 03.01 Research Reactor. As used in this chapter, research reactor is a broad term that includes test reactors, critical facilities, plus all of the other non-electricity-producing reactors subject to NRC regulation.
- 03.02 Test Reactor. Refers to reactors that were issued test reactor licenses and includes MBS and GETR.
- 03.03 Critical Facilities. Refers to facilities that were issued critical licenses and includes such facilities as BBW (50-13), Battelle (50-360), and Rensselaer (50-225).

*See Section 2545-05 for a list of abbreviations used in this chapter and in related procedures.

- 03.04 Experiments. Includes all types of irradiations (both in-core and out-of-core), special tests or managements, class exercises in some cases such as fuel loading, rod calibration techniques, flux measurements, etc. It is not intended to draw a clear distinction between what is routine operation and what is new or unknown about it which could result in a potential for increased hazard.
- In some cases the licensee may choose to consider an item routine operation if performed by licensed operators, yet an experiment if performed by college students. This is a typical method of increasing administrative controls when extra caution is needed.
- 03.05 Irradiations. Refers to type of experiment involving radiation from the reactor used to create new isotopes or raise nuclear energy levels.
- 03.06 Classes of Research and Test Reactors. There are three classes:
- Class I. Reactors of 2 Mw or greater that require at least an annual inspection cycle.
 - Class II. Operating reactors of less than 2 Mw that require inspections on a 2-year cycle.
 - Class III. Reactors on extended shutdown or decommissioned prior to dismantlement that require inspections on a 3-year cycle.
- 03.07 Material Safeguards Categories. The amount, type, and enrichment of the nuclear material determines the safeguards category and the required level of protection. See Table 6.
- 03.08 Exempt Material. Refers to the material in the licensee's inventory which, due to the self-protecting nature of its radiation level and/or fabrication, is exempt from the physical protection requirements of 10 CFR Part 73.
- 03.09 Nonexempt Inventory. The aggregate of all material within a specified site or building, except that which is exempt due to its self-protecting nature.
- 03.10 Inspection Cycles (See Table 3)
- Annual (A)
The effort should normally be performed at least once per year. This cycle would apply to Class I reactors or facilities possessing formula quantities of strategic special nuclear material.

b. Biennial (BA)

The effort should normally be performed at least once every two years. This cycle would apply to Class II reactors or facilities possessing material of moderate strategic significance.

c. Triennial (TA)

The inspection effort should normally be performed at least once every three years. This cycle would apply to Class III reactors or facilities possessing material of low strategic significance.

2545-04 RESPONSIBILITIES AND AUTHORITIES

04.01 Director, Division of Inspection Programs. Overall administration and implementation of the inspection program outlined in this chapter for research reactors.

04.02 Director, Appropriate Regional Office Division. Overall administration and implementation of the inspection program outlined in this chapter for research reactors within regional boundaries.

04.03 Chief, Appropriate Regional Office Branch. Administration and implementation of the inspection program outlined in this chapter for research reactors assigned.

2545-05 DISCUSSION

This chapter provides guidance for the scheduling of inspections and for the implementation of the inspection program. The program establishes uniform inspection methodology for each reactor class and safeguards category and leaves sufficient flexibility to the regions for optimizing the utilization of their inspection resources. Experience has shown that the extent of the inspection program is based on demands placed on available inspection resources. For that reason, this chapter defines the minimum inspection program for a determination of acceptable operation.

The operations portion of the inspection program emphasizes the larger reactor (e.g., 2 Mw or greater). The safeguards and security portion of the inspection program places most emphasis on reactors possessing a formula quantity of strategic special nuclear material (FSNM), and least emphasis on reactors possessing quantities of special nuclear material of low strategic significance. (LSNM).

Currently, safety plans are tailored to the safeguards categories of material that the licensee will possess, considering the quantity exempted under 10 CFR Part 73.60 or 73.67(b).

2545-06 TABLES APPENDED TO THIS CHAPTER

Table 1 classifies all research and test reactors according to operable power level (I, II, or III). Table 2 categorizes all reactors according to on hand and authorized inventories of SNM (formula, moderate, low, or n/a). Table 3 presents the inspection cycle for operations and safeguards. Table 4 presents the applicable operations inspection procedures. Table 5 presents the applicable safeguards inspection procedures. Table 6 describes the numerical quantities of SNM which constitute the three safeguards categories according to 10 CFR Part 73.

2545-07 INSPECTION PHILOSOPHY

Region-based inspectors will conduct inspections using those procedures for research reactors that are directed by their supervisors. Certain aspects of their inspection activity can be conducted in the Regional Office, i.e., portions of procedure review and administrative program inspection.

For Category 1 facilities, the inspection program is designed so that the entire operations program, including health physics and emergency planning, can be done by one inspector during one inspection. The safeguards region-based inspectors should be used as necessary to fulfill the programmatic requirements for safeguards inspections.

Regions should continue to combine inspections of different disciplines where reasonable to conserve resources. Disciplines with moderate inspection requirements conducted at infrequent intervals may be inspected by those of another discipline. For example, a materials inspector may conduct security, MC&A, and radiation safety inspections of the Part 50 non-power reactor as well as the Part 30 materials licenses at a university. Separate reports must be prepared for the Part 30 and the Part 50 docket files. Inspectors must be technically capable of conducting these multi-disciplined inspections, particularly if judgements of adequacy are expected.

The region-based inspector may also conduct independent inspection activities. There are no stated goals for region-based inspections on backshift or for independent inspection. However, backshift inspection will be performed whenever required to complete the inspection.

2425-0E SAFEGUARDS INSPECTIONS

OE.01 Safeguards Categories. The category of the safeguards protection that must be afforded by the licensee should be determined before the inspector departs for the site. It is based on the total nonexempt inventory, as shown in Table 6.

- 08.02 Exemptions. Material is exempt from inclusion in the total inventory to the extent that it is not readily separable from other radioactive material and has a radiation dose rate in excess of 100 rem/hour at 3 feet (see 10 CFR Part 73, Section 73.60 and 73.67(b)(1)). Furthermore, if the total inventory is equal to quantities of moderate strategic significance, but the quantity in each building is equal to or less than quantities of low strategic significance, the facility will be considered to be Category III (10 CFR 73.67(b)(2)).
- 08.03 Verification of exempt inventory. Regions shall verify the licensee's contention that the quantity of material exempt from inventory is not readily separable and does in fact have a radiation dose rate in excess of 100 rem/hour at 3 feet. Verification can be accomplished through evaluation and review of operating history, screening through use of nomographs, or computation by computer program. In the event that material has not been maintained at the self-protecting level so that the total nonexempt inventory rises to the next highest safeguards category, the licensee should provide increased protection, as appropriate. If the approved plan includes sections to deal with this event, the licensee must be inspected against these additional requirements. If the approved plan does not have sections to deal with the loss of the exemption, the licensee is in noncompliance with the rule for not having an approved plan, and is also in noncompliance to the extent that the additional necessary protections are not provided.
- 08.04 Security inspections. Inspectors shall determine compliance based on the licensee's approved physical security plan, and shall determine adequacy and effectiveness of the licensee's program based on the appropriate portions of 10 CFR 73.60 and 73.67 and generally accepted practices. Citations for noncompliance should be based on the approved plan. Findings of inadequacy should be referred to the appropriate licensing staff.

2545-09 GENERAL GUIDANCE

Although each inspection procedure contains many inspection requirements, the individual inspector is expected to apply professional judgment regarding the need for completing each specific item. For example, s/he may have assurance that the basic requirement has been satisfied via some other source (i.e., LEF followup, independent inspection effort, temporary instructions followup). In such cases the inspector does not need to perform these specific items. In summary, the items in Section 02 of inspection procedures lists the attributes which should be considered when evaluating the area covered by the inspector procedure.

As stated in 10 CFR and IETIC 2500, NRC inspectors perform a basic mission

In verifying that a licensee meets current regulatory requirements and commitments. Identifying specific instances where a licensee fails to meet regulatory requirements and/or commitments, although important, has frequently resulted only in correction of symptoms rather than correction of the underlying causes of licensee problems. Therefore, it is incumbent upon the inspectors to also provide information concerning whether certain licensee programs are inadequate or ineffective. Because of the limited number of inspectors, the NRC inspection program examines only a very small sample of licensee activities in any area. Thus, it is important that an inspector evaluate whether a noted noncompliance or deficiency represents an isolated case or signifies a broader, more serious problem in that area. To provide the perspective to perform this evaluation, the inspector should:

- a. keep currently informed of deficiencies, audit findings, and plant problems identified by the licensee's own organization; and
- b. ascertain whether additional personal inspection effort is merited in the area under consideration.

Where the evidence indicates that a problem may exist, enforcement action should be considered to require the licensee to demonstrate to the NRC that it has not lost control of that area. The individual inspector should consult Regional supervision whenever the findings of an inspection suggest that such enforcement action appears appropriate.

2545-10 ABBREVIATIONS USED IN THIS CHAPTER AND IN RELATED PROCEDURES

AFRI	Armed Forces Radiobiology Research Institute
AGN	Aerogel General Nucleonic
ANS	American Nuclear Society
ANSI	American National Standards Institute
B&W	Babcock and Wilcox
DBE	design-basis event
DIP	Division of Inspection Programs, IE
EP	emergency planning
FSM	formula quantity of strategic special nuclear material
GETR	General Electric Test Reactor, Vallejos, CA
HP	health physics
IE	Office of Inspection and Enforcement, NRC
LCO	limiting condition for operation
LER	licensee event report
LLNL	Lawrence Livermore National Laboratory
LSM	special nuclear material of low strategic significance
MIT	Massachusetts Institute of Technology
MSM	special nuclear material of moderate strategic significance
n/a	not applicable
NBS	National Bureau of Standards, Gaithersburg, MD
NRC	Nuclear Regulatory Commission
OL	operating license or Operator Licensing
SM	special nuclear material
TRIG	Training Reactor, Isotope Production, General Atomic
TS	technical specifications

TABLE 3 - FREQUENCY OF INSPECTIONS

	Operations Class of Reactor Power	Safeguards Category
Annual	I	FSNM
Biennial	II	FSNM
Triennial	III	LSNM

TABLE 4

MC 2545 RESEARCH REACTOR INSPECTION PROGRAM:
OPERATIONS INSPECTIONS

PHASE AND PROCEDURE NUMBER	TITLE	Operators Class Applicability
<u>Routine Inspections</u>		
30703	Entrance, Exit Interview	I/II/III
39745	Organization, Logs and Records	I
40745	Review and Audit	I
40757	Class II Operations Procedure	II
40758	Class III Operations Procedure	III
41745	Qualification Training	I
42745	Procedures	I
60745	Refueling	I
61745	Surveillance	I
69745	Experiments	I
80745	Environmental Protection	I
82745	Emergency Plan	I
83743	Health Physics	I
86740	Transportation Activities	I/II/III
92706	Independent Inspection Effort	I/II/III
<u>When Required Inspections</u>		
90712	In Office Review of Event Reports	I/II/III
92706	Licensee Event Followup	I/II/III
92701	Followup on Inspector Identified Problems	I/II/III
92702	Followup on Items of Noncompliance/Deviation	I/II/III
92703	IE Bulletin/Circular/Confirmatory Action Letter Followup	I/II/III
92715	Review of Part 21 Reports	I/II/III
92711	Part 21 Report Followup	I/II/III
92717	IE Circular/Information Notice	I/II/III

TABLE 5
NONPOWER REACTOR SAFEGUARDS
INSPECTION PROGRAM

PROCEDURE NUMBER	TITLE
<u>All Licensees</u>	
30703	Entrance/Exit Meeting
81401	Physical Security and Safeguards Contingency Plans
81402	Reports of Safeguards Events
85102	Material Control and Accounting
In addition to the above:	
<u>If FSM</u>	
81810	Protection of Safeguards Information
81411	Physical Protection for Nonpower Reactors with FSM
<u>If MSNM</u>	
81421	Fixed Site Physical Protection of MSNM
<u>If LSM</u>	
81431	Fixed Site Physical Protection of LSM
<u>As required</u>	
81403	Receipt of New Fuel at Reactor Facilities
92706	Independent Inspection Effort
92xxx	as shown in Table 4, as applicable

TABLE 6

Categories of Special Nuclear Material

	10 CFR 73.2(bb) Formula Quantities of SNM <u>(FSNM)*</u>	10 CFR 73.2(x) SNM of Moderate Strategic Significance <u>(MSNM)*</u>	10 CFR 73.2(y) SNM of Low Strategic Significance <u>(LSNM)*</u>
Plutonium	x GE 2,000g	x GT 500g	x GT 15g
U-233	x GE 2,000g	x GT 500g	x GT 15g
U-235 (E GE 20%)	x GE 5,000g	x GT 1,000g	x GT 15g
U-235 (10% LE E LT 20%)		x GT 10,000g	10,000g GT x GT 1000g
U-235 (0% LT E LT 10%)			x 10,000g
g = U-235(E GE 20%) + U-233 + Pu			x GT 15g
g = U-235(E GE 20%) + 2(U-233 + Pu)		x GT 1,000g	
g = U-235(E GE 20%) + 2.5(U-233 + Pu)	x GE 5,000g		

Key

- E = Enrichment
- GE = Greater than or Equal To
- GT = Greater Than
- LT = Less Than

NOTE: FSNM, MSNM, and LSNM are commonly referred to as Category I, II, and III, respectively, as developed by the IAEA (see Appendix C to 10 CFR 110)

Inspection Procedure 81401

PHYSICAL SECURITY AND
SAFEGUARDS CONTINGENCY PLANS

Program Applicability: 2513, 2545, 2681

81401-01 INSPECTION OBJECTIVES

01.01 To assure that:

a. the licensee has an approved physical security plan (PSP) and, if the licensee possesses a formula quantity of SSIM, a safeguards contingency plan (SCP);

b. changes to the PSP or SCP have not decreased the overall effectiveness of the plans; and

c. that the PSP and SCP are adequate to satisfy the performance objectives of the regulations.

01.02 To assure that the licensee's physical security program adequately implements the requirements of 10 CFR Part 73.

81401-02 INSPECTION REQUIREMENTS

02.01 Plan Revisions.

a. Determine whether the PSP and SCP have been revised since the last inspection, and whether any of the changes have decreased the overall effectiveness of the plan. (50.54(p), 70.32(e))

b. Verify that all changes have been:

(1) submitted to the NRC for prior Commission approval, or

(2) reported, with sufficient description, within two months after the change was made if it was determined that the change would not decrease the overall effectiveness of the plan.

02.02 Unapproved Revisions. Determine whether the licensee has implemented any changes to the PSP and not yet notified the NRC. If this is true, verify that: (1) the change was implemented not more than two months ago, and (2) the licensee evaluated the change prior to implementation to assure that it would not reduce plan effectiveness. (50.54(p))

02.03 Records of Revisions. Verify that the licensee has retained copies of changes made without prior Commission approval for 2 years. (50.54(p), 70.32(e))

02.04 Procedures. Verify that the licensee has procedures to implement the PSP and SCP, as appropriate.

02.05 Verify that the licensee provides for a periodic review of all procedures developed to implement the PSP and SCP.

02.06 Verify that the licensee's PSP and SCP contain sufficient detail to adequately accomplish their intended purpose.

02.07 Category 1 Borrower Reactors. In addition to the above, if the licensee possesses formula quantities of SSIM:

a. Contingency Plan. Verify that the licensee has a safeguards contingency plan which includes plans for dealing with threats and thefts. (5C.34(d))

b. Procedures. Verify that detailed procedure descriptions (the fifth category of information required under Appendix C, 10 CFR 73) are available at the licensee's site, to meet the requirements of 10 CFR 50.54(p) and 70.32(g).

c. Program Review.

(1) Verify that the licensee has provided for a review of the safeguards contingency plan. (5C.54(p))

(2) Verify that the individuals conducting the audit are qualified to do so.

(3) Verify that the recommendations are implemented, and that corrective actions are taken.

81401-03 INSPECTION GUIDANCE

03.01 Inspection Requirements 02.01 and 02.02 - Plan Revisions. If a change to the PSP or SCP does not decrease the effectiveness of the plan, the licensee does not have to submit the change to the NRC for prior approval. However, the licensee is required to have determined before implementation that the change does not decrease plan effectiveness. If the change does not decrease plan effectiveness, the change needs to be submitted only within two months after implementation. Changes that are determined by the NRC to reduce overall effectiveness of the plan can result in the licensee being cited not only for a failure to comply with the appropriate requirements, but also for failure to apply for and receive approval of such change prior to implementation.

03.02 Inspection Requirement 02.07c - Program Review.

a. The review which the licensee is required to conduct of the SCP should:

(1) include a review and audit of SCP procedures and practices, an audit of the testing and maintenance program, and a test of the safeguards program and commitments established for response by

LLEA.

(2) be conducted by individuals independent of both the security program management and personnel who have a direct responsibility for implementation of the security program.

(3) include results which, along with the recommendations for improvements, must be documented, reported to the licensee's corporate management, and kept available at the licensee's plant for two years.

b. Although the rule does not require the licensee to perform a review of the physical security program, such a review would be necessary to assure the continued efficiency of the program.

81401-04 REFERENCES

Regulatory Guide 5.59, "Standard Format and Content for a Licensee Physical Security Plan for the Protection of Special Nuclear Material of Moderate or Low Strategic Significance"

Inspection Procedure 81402
REPORTS OF SAFEGUARDS EVENTS

Program Applicability: 2545, 2681

81402-01 INSPECTION OBJECTIVES

To verify that the licensee has reported all safeguards events as required in 10 CFR 73.71, and followed up with a written report.

81402-02 INSPECTION REQUIREMENTS

02.01 Trace Investigation of Shipments

a. Verify that the licensee has notified the NRC within one hour of all cases in which the licensee has conducted a trace investigation for lost or unaccounted for shipments, or shipments which have not arrived at their destination by the estimated time of arrival. (73.71(a))

b. Verify that the licensee has filed a written report of the details and results of any trace investigation within fifteen days of the completion of the investigation. (73.71(a))

02.02 Incidents

a. Verify that the licensee has notified the NRC within one hour of any incident in which an attempt has been made, or is believed to have been made, to commit a theft or unlawful diversion of SNM. (73.71(b))

(NOTE: When this procedure was being developed, the rule was being revised to specify that reports would be required within one hour of the discovery of the theft or attempted theft.)

b. Verify that the licensee has filed a written report within fifteen days of the incident detailing the results of any investigation or actions taken. (73.71(b))

02.03 Events

a. Verify that the licensee has notified the NRC within one hour of the discovery of any event which significantly lessens the effectiveness of the physical security system. (73.71(c))

b. Verify that the licensee has filed a written report within five days of the event. (73.71(c))

c. Verify that the licensee has reported any other events of lesser significance in accordance with the time limits specified in the table in 10 CFR 73.71.

02.04 Quality of Reports

- a. Verify that the reports submitted by the licensee are adequate and appropriate for their intended purpose.
- b. Verify that the report contains sufficient detail to allow a reader to understand the circumstances of the event, the analysis conducted to determine the cause of the event, and the short-term and long-term action taken by the licensee.

81402-03 INSPECTION GUIDANCE

The inspector should check the Regional Office records of reports of incidents and events before departing for the site. This provides a list to compare to the licensee's log of incidents/events, and will show the date of receipt of written reports as opposed to the date of mailing which the licensee's log may contain.

03.01 Inspection Requirement 02.01 - Trace Investigation. Notification of the NRC must be within one hour of the discovery of the loss of the material followed by a report of the details of the investigation as the information is developed.

03.02 Inspection Requirement 02.03 - Events. The time period allowed for reporting of events begins upon discovery of the event by any member of the security organization or any other employee of the licensee.

81402-04 REFERENCES

Regulatory Guide 5.62, "Reporting of Safeguards Events"

Inspection Procedure 81403

RECEIPT OF NEW FUEL AT REACTOR FACILITIES

Program Applicability: 2513, 2545

81403-01 INSPECTION OBJECTIVES

- 01.01 To assure that the licensee's physical security program provides the necessary protection for new fuel upon receipt but prior to incorporation into the licensee's physical protection system.

81403-02 INSPECTION REQUIREMENTS

02.01 General

- a. Verify that the licensee checked the integrity of containers and seals upon receipt of the shipment. (73.67(e)(2)(1) and (g)(2)(1))
- b. Verify that the licensee notified the shipper of receipt of the shipment. (73.67(e)(2)(1i) and (g)(2)(1i))
- c. Verify that the licensee immediately initiated a trace investigation for any shipment that was determined to be lost or unaccounted for after a reasonable time after the estimated arrival time. (73.67(e)(3)(iv) and 73.67(g)(3)(iii))
- d. Verify that the licensee notified the NRC and the shipper of the initiation of a trace investigation. (73.67(g)(3)(iii)) (See Inspection Procedure 81402)
- e. Verify that the arrangements made by the licensee for the protection of the shipment met the requirements of 10 CFR 73.67(e)(3) or 73.67(g)(3), for MSNM or LSNM, as appropriate.
- f. Verify that the physical protection provided by the licensee, or by the licensee's agent, was sufficient to adequately protect the material while in-transit.

02.02 Additional Requirements for MSNM

- a. Verify that the material was shipped:
- (1) only in dedicated transports with no intermediate stops, transfers, or temporary storage in-transit, or
 - (2) under arrangements whereby the custody of the shipment and all custody transfers were acknowledged by signature. (73.67(e)(4)(i))

b. Verify that the material was kept under lock or under the control of an individual who acknowledged accepting custody by signature. (73.67(e)(4)(ii)). Also, verify that the material was transported, when appropriate, in a tamper-indicating sealed container or vehicle.

c. Verify that the individual who accepted custody of the material was capable of protecting it.

02.03 Additional Requirements for LSM

Verify that the material was transported in a tamper-indicating sealed container. (73.67(g)(1)(iii))

81403-03 INSPECTION GUIDANCE

03.01 The inspection program consists of an examination of a random selection of items which are required to be inspected. This random selection method does not, however, relieve the licensee of the responsibility to check all such items under its control. For example, although the NRC inspector may only check certain containers, locks, and seals, when inspecting a shipment of new fuel, the licensee must examine all such items to ensure compliance.

03.02 Inspection Requirement 02.01f - Physical Protection In-Transit. The requirements for inspection of materials in-transit are covered in the IE Inspection Procedures of the 81300 series (IE MC 2681). This particular inspection requirement is intended to supplement that effort and to determine if there is any justification for reprogrammed effort.

81403-04 REFERENCES

NUREG/CR-0099, "Evaluation of Road-Transit Physical Protection Systems"
NUREG/CR-1255, "Tactical Board Game for Development and Evaluation of Road-Transit Physical Protection Systems"
Regulatory Guide 5.15, "Security Seals for the Protection and Control of Special Nuclear Material"
Regulatory Guide 5.32, "Communication with Transport Vehicles"
Regulatory Guide 5.63, "Physical Protection for Transient Shipments"

Inspection Procedure 81411

PHYSICAL PROTECTION FOR NONPOWER REACTORS WITH FORMULA QUANTITIES OF SPECIAL NUCLEAR MATERIAL

Program Applicability: 2545

81411-01 INSPECTION OBJECTIVES

- 01.01 To verify that the licensee has established and maintains a physical protection system sufficient to prevent unauthorized access to, or removal of, formula quantities of special nuclear material (FSNM).
- 01.02 To assure that the licensee's physical protection program adequately implements the applicable requirements of 10 CFR Part 73.

81411-02 INSPECTION REQUIREMENTS

02.01 Use and Storage

- a. Verify that SNM is stored or processed only within MAAs. (73.60(a)(1)).
- b. Verify that SNM not in process is stored in a vault equipped with an intrusion alarm system or in a vault-type room controlled as a separate material access area. (73.60(a)(3)).
- c. Verify that the licensee's safeguards system assures proper placement and transfer of custody of SNM.
- d. Verify that separately fenced areas containing enriched uranium scrap are (i) within a larger FA, (ii) locked, and (iii) no closer than 25 feet from the perimeter of the FA. (73.60(a)(4))
- e. Verify that the procedures used by the licensee to control the placement and transfer of custody of SNM are sufficiently detailed to inform the users of their responsibilities and that these procedures are revised as necessary on a timely basis.
- f. Verify that all individuals whose duties include the use of procedures are properly trained in their execution.

02.02 Detection and Surveillance

- a. Verify that areas containing enriched uranium scrap, when unoccupied, are protected by an intrusion alarm system or by a guard or watchperson who patrols the area(s) at least every four hours. (73.60(a)(4)).
- b. Verify that all unoccupied MAAs are protected by an active intruder alarm system. (73.60(c)).

c. Verify that the alarms are appropriate in type, number, and application to provide adequate surveillance of the area.

d. Verify that all emergency exits are continuously alarmed. (73.60(c))

e. Verify that there are methods for observing individuals within MAAs to assure SNM is not diverted and that these methods are used on a continuing basis. (73.60(a)(7))

02.03 Access Control

a. Verify that only the activities requiring access to SNM or equipment employed in the process, use, or storage of SNM are permitted in MAAs. (73.60(a)(1))

b. Verify that all MAAs are located within the PA. (73.60(a)(2))

c. Verify that access to the PA is controlled. (73.60(a)(2))

d. Verify that access to the room containing the reactor vessel is controlled and the room is designated a PA, MAA, or CAA, as appropriate.

e. Verify that the access controls are adequate to detect and delay the unauthorized entry of individuals or materials.

f. Verify that the boundaries of the PA, MAA, and CAA are clearly demarcated.

g. Verify that only authorized individuals control access to MAAs. (73.60(a)(5)).

h. Verify that the licensee screens employees before granting access to CAAs and issues badges to authorized individuals to facilitate identification.

i. Verify that access to MAAs is limited to those individuals requiring such access to perform their duties. (73.60(a)(5))

j. Verify that visitors and employees not authorized unescorted access but who require access to perform their duties are escorted at all times while within the MAA or CAA by an individual who is authorized access.

02.04 Response

a. Verify that there is a security organization able to assess and respond to any unauthorized penetrations or activities in the PA, MAA, or CAA, and with communications capability with the appropriate response force.

b. Verify that there are response procedures for dealing with threats of theft and theft of SNM.

c. Verify that all individuals responsible for response to security emergencies are trained, equipped, and qualified to perform the response procedures, as appropriate.

d. Verify that the licensee responds to indications of unauthorized removal of SNM and notifies the appropriate response force.

02.05 Search

a. Verify that packages are searched prior to entry into the PA for firearms, explosives, incendiary devices, and counterfeit substitute items which could be used for theft or diversion of SNM. (73.60(a)(6)).

b. Verify that the search equipment and procedures are adequate and reliable to accomplish their intended purpose.

c. Verify that each individual, package, and vehicle is searched for concealed SNM prior to exit from an HAA unless exit is to a contiguous HAA. (73.60(b))

d. Verify that the search is capable of detecting amounts of material of the same size, shape, and radiation level found in the facility.

02.06 Testing and Maintenance

a. Verify that the licensee maintains all alarms, communications equipment, physical barriers, and other security related devices in operable and effective condition. (73.60(d)(1)).

b. Verify that the licensee tests each intrusion alarm for operability and required performance at the beginning and end of each interval of use, but at least once every seven days of continuous use. (73.60(d)(2)).

c. Verify that the licensee periodically tests all security related devices and equipment.

B1411-C3 INSPECTION GUIDANCE

The inspector is not expected to test security equipment. However, sometimes a test is necessary to evaluate the effectiveness of the security system and to ensure compliance with requirements. In this situation, the inspector may conduct a test as long as it will not reduce facility safety or security, result in a violation of requirements or industry standards, or jeopardize the safety of the inspector or licensee employees. To conduct the test, the inspector must request the test through licensee management, and arrange to have a licensee employee conduct the test while the inspector observes.

03.01 Inspection Requirement 02.01a - Use and Storage. The purpose of the MAA is to prevent unauthorized access to the material; therefore, the construction must be sufficient to meet this purpose. The walls, ceiling, and floor must meet the definition of physical barriers in 10 CFR 73.2, must be of sufficient strength to constitute a physical barrier, and there must be no weaknesses in the overall envelope of the room, including doors, windows, or other openings, such that the integrity of the barrier is lessened.

03.02 Inspection Requirement 02.02 - Detection and Surveillance

a. The alarms must be appropriate in type, number, and application to detect unauthorized intrusions into the area. If patrols are used, they must be capable of detecting unauthorized penetrations or presences in the area, and of responding to indications of such unauthorized penetration or presence.

b. These alarms are intended to alert the security organization to the unauthorized exit of individuals or materials from MAAs. Therefore, they must be immediately activating (have no design delay), and must annunciate in an area that is continuously staffed.

03.03 System Design for Prevention of Theft. Regulatory Guide 5.59 discusses the types of theft that the licensee is expected to prevent. On the subject of SSNM, the Guide states that the licensee's systems must be capable of detecting the theft within two hours. However, there is no discussion of the detection of theft of FSNM. A reading of other guidance on the subject has led the staff to interpret the requirement regarding detection of theft to require the licensee to be able to detect thefts of FSNM immediately. As a result, the systems used by the licensee must include equipment and/or procedures adequate and appropriate for achieving this goal of timeliness of detection.

03.04 Inspection Requirement 02.03 - Access Control

a. It would not be acceptable to have a single physical barrier serve as both the MAA barrier and the PA barrier. The inspector must verify that the licensee has separated the areas so that the intent of the rule, the access to MAAs from outside the PA require passage through at least two barriers, has been met.

b. The access control function must be capable of (1) verifying the authorization of individuals requesting access to the site, and (2) barring those individuals not authorized access to the site.

c. Each MAA must have independent systems for access control, although two MAAs may share a wall. If there is a door allowing access to one MAA directly from another, the door must have authorized individuals controlling access in each direction, or both MAAs must be considered to be a single MAA.

d. The intent of providing a separation distance between a PA

perimeter and a separate storage area containing enriched uranium scrap is to ensure a double barrier and allow the appropriate licensee employees with an opportunity to observe any attempted intrusions near the area containing the scrap. Therefore, the area between the PA barrier and the scrap must be treated the same as an isolation zone, and it must be kept clear of trees, brush and other obstacles which would provide an intruder an opportunity to hide.

03.05 Inspection Requirement 02.04 - Response

a. Although no specific requirements are presented in the rule to form a basis for determining the adequacy of response forces, they should be capable of responding in a reasonable period of time and assisting in the location and recovery of missing or stolen SNM.

b. The procedures must be capable of explaining to a reasonably well-trained individual what steps must be taken to achieve the desired result. Therefore, if the intent of a particular procedure is to notify the LLEA, it must contain telephone numbers of the appropriate LLEAs and other agencies as well as instructions for the use of equipment other than the telephone. The fairest test of the adequacy of procedures is to have them carried out by one or more of the individuals expected to have to resort to them during the course of their duties. If the individual(s) is(are) unsuccessful at carrying out the action explained by the procedure, the inspector must determine whether the problem is related to poor procedures, poor training, or poor execution.

03.06 Inspection Requirement 02.05 - Search

a. Packages and materials involved in Commission approved delivery and inspection activities specifically designated by the licensee to be carried out within MAAs, VAs, and PAs for reasons of safety, security, or operational necessity are exempt from the need to search.

b. DOE vehicles engaged in transporting SNM, emergency vehicles under emergency conditions, and designated licensee vehicles are exempt from search and escort requirement.

c. The search must be capable of detecting unauthorized attempts to remove material from the MAA. The size, form, and type of material used, processed, or stored in the MAA may determine the method of search.

03.07 Inspection Requirement 02.06 - Testing and Maintenance

a. The licensee must not only have and implement a program for periodic testing and maintenance, but also be aware of generic weaknesses in certain types of equipment. Failure to compensate for equipment weaknesses that the licensee could reasonably be expected to anticipate can be considered a failure to comply with this requirement.

b. The weekly testing requirement does not mean that the licensee must test the equipment precisely every seven days. Minor variations in periodicity are acceptable as long as the tests average one every seven days.

03.08

Training in Procedures. Individuals with responsibilities in the security organization must be trained in the use of the procedures which they may need in the conduct of their duties. The training must be sufficiently complete to ensure that the individual can conduct the activity for which the procedure was written either (1) without the procedure, or (2) with relative ease using the procedure. Members of the security organization or the employees with security responsibilities are not expected to know the content and conduct of procedures which they will never be called upon to carry out, but must be familiar with procedures involving the individual's primary duties as well as back-up responsibilities.

81411-04

REFERENCES

- Regulatory Guide 5.7, "Entry/Exit Control for Protected Areas, Vital Areas, and Material Access Areas"
- Regulatory Guide 5.12, "General Use of Locks in the Protection and Control of Facilities and Special Nuclear Materials"
- Regulatory Guide 5.14, "Use of Observation (Visual Surveillance) Techniques in Material Access Areas"
- Regulatory Guide 5.15, "Security Seals for the Protection and Control of Special Nuclear Material"
- Regulatory Guide 5.20, "Training, Equipping, and Qualifying of Guards and Watchmen"
- Regulatory Guide 5.27, "Special Nuclear Material Doorway Monitors"
- Regulatory Guide 5.43, "Plant Security Force Duties"
- Regulatory Guide 5.44, "Perimeter Intrusion Alarm Systems"

Inspection Procedure 81421

FIXED SITE PHYSICAL PROTECTION OF SPECIAL NUCLEAR MATERIAL OF MODERATE STRATEGIC SIGNIFICANCE

Program Applicability: 2545, 2681

81421-01 INSPECTION OBJECTIVES

- 01.01 To assure that the licensee has a physical protection system that will:
- a. minimize the potential for unauthorized removal of SNM, and
 - b. facilitate the location and recovery of missing SNM.
- 01.02 To assure that the licensee's physical protection program adequately implements the applicable provisions of 10 CFR Part 73.

81421-02 INSPECTION REQUIREMENTS

02.01 Use and Storage

- a. Verify that the SNM is used only within a controlled access area (CAA) and is stored only within a CAA such as a vault-type room or approved security cabinet or the equivalent. (3.6(c)(1) and (2))
- b. Verify that the physical structure, equipment, and procedures are adequate to allow the licensee to control access to the CAA.
- c. Verify that the licensee's safeguards system assures proper placement and transfer of custody of SNM. (73.67 a)(2)(iii))
- d. Verify that the procedures employed by the licensee to control the placement and transfer of custody of SNM are sufficiently detailed to inform the users of their responsibilities and that these procedures are revised as necessary on a timely basis.
- e. Verify that all individuals whose duties include the use of these procedures are properly trained in their execution.

02.02 Detection and Surveillance

- a. Verify that the licensee's safeguards system:
 - (i) provides early detection and assessment of unauthorized

NOTE: Inspection Procedure 81036 describes sampling techniques that are useful when a 100% sample is not feasible.

access or activities within the CAA (73.67(a)(2)(1); and

(2) provides early detection of removal of SNM from the CAA (73.67(a)(2)(1)). (See Sections 02.05 and 03.05, below.)

b. Verify that the detection and assessment of unauthorized access and/or activities, or of unauthorized removal of SNM, is sufficiently prompt that a response could facilitate the location and recovery of the missing SNM.

c. Verify that CAAs are sufficiently illuminated and have intrusion alarms or other devices or procedures to detect and observe unauthorized penetrations and/or activities. (73.67(d)(1), (2), and (3)).

d. Verify that the alarms, devices, or procedures used to monitor the CAA are adequate to allow the security organization to respond to the threat.

e. Verify that all individuals whose duties include the use of procedures are properly trained in their execution.

02.03 Access Control

a. Verify that access to the room containing the reactor vessel is controlled and the room is designated a CAA. (73.67(d)(1))

b. Verify that all CAAs are clearly demarcated.

c. Determine if the licensee's access control procedures and mechanisms are capable of preventing unauthorized entry of individuals or materials.

d. Verify that the licensee screens employees before granting access to CAAs, limits access to those employees requiring such access to perform their duties, and issues badges to authorized individuals to facilitate identification. (73.67(d)(4), (5), and (6)).

e. Verify that access to the CAA is controlled using a lock system. (73.67(d)(5)).

f. Verify that visitors and employees not authorized unescorted access but who require access to perform their duties are escorted at all times while within the CAA by an individual authorized access to the area (73.67(d)(6) and (7)).

02.04 Response

a. Verify that there is a security organization consisting of at least one watchperson per shift able to assess and respond to any unauthorized penetrations or activities in the CAAs, and with communications capability with the appropriate response force. (73.67(d)(8) and (9)).

b. Verify that there are response procedures for dealing with threats of theft and theft of SNM. (73.67(d)(11)).

c. Verify that the licensee responds to indications of unauthorized removal of SNM and notifies the appropriate response force.

d. Verify that all individuals responsible for response to security emergencies are trained, equipped, and qualified to perform the response procedures, as appropriate.

02.05 Search

a. Verify that there is a CAA exit search of vehicles and packages for concealed SNM. (73.67(d)(10)).

b. Verify that the CAA exit search is appropriate for the size, shape, and radiation level of material found in the facility.

02.06 Testing and Maintenance. Verify that the licensee periodically tests all security related devices and equipment.

81421-03 INSPECTION GUIDANCE

The inspector is not expected to test security equipment. However, sometimes a test is necessary to evaluate the effectiveness of the security system and to ensure compliance with requirements. In this situation, the inspector may conduct a test as long as it will not reduce facility safety or security, result in a violation of requirements or industry standards, or jeopardize the safety of the inspector or licensee employees. To conduct the test, the inspector must request the test through licensee management, and arrange to have a licensee employee conduct the test while the inspector observes.

03.01 Inspection Requirement 02.01a - Use and Storage

a. The vault-type room or container should be designed in a way that will delay the theft of the material, or facilitate the location and recovery of the material if it is stolen.

b. The CAA may be of temporary, or permanent construction.

03.02 Inspection Requirement 02.01 - Detection and Surveillance

a. Alarms. Alarms and other devices are used to monitor the CAAs when they are unoccupied and therefore must be appropriate in type, number, and application to ensure detection of unauthorized presence or activities during times when the CAA is unoccupied. If procedures are used in place of equipment, the procedures must be written and implemented in a manner that provides an equivalent level of protection.

b. The CAAs must be illuminated such that all reasonable paths from openings in the barrier to the SIP can be observed by individuals at work in the CAAs. This includes all direct routes, but must also include all indirect routes if these paths can reasonably be expected to provide a potential thief with undetected exit from the CAA. The illumination levels for normally occupied CAAs should be sufficient to allow surveillance by the unaided human eye. The lighting should be uniform, shadowless, and free from glare. Measurements should not be necessary unless the inspector is unable to easily observe the area with the unaided eye. However, if a measurement is necessary, the illumination should be a minimum of 2-5 footcandles (See NUREG/CR-1327, "Security Lighting Planning Document for Nuclear Fixed Site Facilities"). Licensing criteria issued by NMSS have suggested that an illumination level of 0.2 footcandles may be sufficient to maintain surveillance of the area. If the illumination of the CAA measured is between 0.2 and the minimum specified above, the issue should be sent to IE for resolution.

c. If procedures are used in place of detection and surveillance equipment, the procedures must be written and implemented in a manner that provides an equal level of protection.

03.03 Inspection Requirement 02.03 - Access Control

a. The licensee's program for screening should be able to uncover information about the individual that would be considered inimical to the safe and secure operation of the facility. An acceptable screening program should consist of past employment, education records, and reference checks.

b. The purpose of the escort is to prevent unauthorized activities by the visitor. The type of CAA, the form and amount of the material within it, the activities conducted in the CAA, and the number of authorized individuals within it at any given time will determine how closely the escort must be to the visitor. Visual surveillance is almost always necessary to allow observation of the visitor's actions. The escort should also observe behavior which may suggest an interest in defeating the security system. For example the escort should notice if the visitor shows an unusual amount of interest in the systems, equipment, and procedures used for protecting the CAA, as if s/he was interested in learning the ways to compromise the system.

03.04 Inspection Requirement 02.04 - Response

a. Although no specific requirements are presented in the rule to form a basis for determining the adequacy of response forces, they should be capable of responding in a reasonable period of time and assisting in the location and recovery of missing or stolen SIP.

b. The procedures must be capable of explaining to a reasonably well-trained individual what steps must be taken to achieve the desired result. Therefore, if the intent of a particular procedure is to notify the LLEA, it must contain telephone numbers or the

instructions for use of equipment other than the telephone. The fairest test of the adequacy of procedures is to have them carried out by one or more of the individuals expected to have to resort to them during the course of their duties. If the individual(s) is(are) unsuccessful in carrying out the action explained by the procedure, the inspector must determine whether the problem is related to poor procedures, poor training, or poor execution.

03.05 System Design for Prevention of Theft

a. There are two types of theft of concern to the licensee, based on the amount and type of material. The following paragraphs discuss Low Enriched Uranium (LEU) which should not be confused with LSNM. See Table 6, IE MC 2545, for details.

The measures taken to prevent or detect the theft, and the time allowed for discovery is also related to the amount and type of material as described below. (See Regulatory Guide 5.59)

(1) Gross theft of LEU. This includes material in amounts large enough that, with further enrichment or other processing, a clandestine fissile device (CFD) could be constructed. The licensee is expected to have systems capable of detecting this type of theft before the material is transported offsite.

(2) Minor Theft of LEU. This includes material in amounts less than that required to construct a CFD, but enough so that repeated thefts of similar amounts could produce sufficient material to do so. The licensee is expected to be able to detect thefts of such amounts soon enough after the fact to permit national efforts to prevent the series of thefts from being carried out. For example, the licensee is not required to immediately detect a theft of only 20% of the amount necessary for a CFD. However, the systems intended to detect theft should be adequate to discover that material is missing (and assist in its location and recovery) before the adversary has an opportunity to commit five such thefts.

b. The licensee is only expected to detect thefts by an external adversary. However, the licensee's program should not be designed in a way that would permit an insider to remove material from the site without being detected.

03.06 Training in Procedures. Individuals with responsibilities in the security organization must be trained in the use of the procedures which they may need in the conduct of their duties. The training must be sufficiently complete to ensure that the individual can conduct the activity for which the procedure was written either (1) without the procedure, or (2) with relative ease using the procedure. Members of the security organization or other employees with security responsibilities are not expected to know the content and conduct of procedures which they will never be called upon to carry out, but must be familiar with procedures involving the individual's primary duties as well as back-up responsibilities.

81421-04 REFERENCES

- NUREG/CR-0027, "Capability for Intrusion Detection at Nuclear Fuel Sites"
- NUREG-0320, "Interior Intrusion Alarm Systems"
- NUREG/CR-0360, "Physical Protection of Nuclear Facilities"
- NUREG/CR-1327, "Security Lighting"
- NUREG/CR-2492, "Special Nuclear Material Self-Protection Criteria Investigation"
- Regulatory Guide 5.7, "Entry/Exit Control for Protected Areas, Vital Areas, and Material Access Areas"
- Regulatory Guide 5.12, "General Use of Locks in the Protection and Control of Facilities and Special Nuclear Material"
- Regulatory Guide 5.14, "Use of Observation Techniques in Material Access Areas"
- Regulatory Guide 5.15, "Security Seals for the Protection and Control of Special Nuclear Material"
- Regulatory Guide 5.59, "Standard Format and Content for a Licensee Physical Security Plan for the Protection of Special Nuclear Material of Moderate or Low Strategic Significance"

Inspection Procedure 81431

FIXED SITE PHYSICAL PROTECTION OF SPECIAL NUCLEAR MATERIAL OF LOW STRATEGIC SIGNIFICANCE

Program Applicability: 2513, 2545, 2681

81431-01 INSPECTION OBJECTIVES

- 01.01 To assure that the licensee has a physical protection system that will:
- a. minimize the potential for unauthorized removal of SNM, and
 - b. facilitate the location and recovery of missing SNM.
- 01.02 To assure that the licensee's physical protection program adequately implements the applicable provisions of 10 CFR Part 73.

81431-02 INSPECTION REQUIREMENTS

02.01 Use and Storage

- a. Verify that the licensee stores or uses the material only within a CAA. (73.67(f)(1)).
- b. Verify that the licensee's safeguards system assures proper placement and transfer of custody of SNM. (73.67(a)(2)(iii))

02.02 Detection and Surveillance

- a. Verify that the licensee's safeguards system:
 - (1) provides early detection and assessment of unauthorized access or activities within the CAA (73.67(a)(2)(i)), and
 - (2) provides early detection of removal of SNM from the CAA (73.67(a)(2)(ii));
- b. Verify that the detection and assessment of unauthorized access and/or activities, and of the unauthorized removal of SNM, is sufficiently prompt that a response could facilitate the location and recovery of missing SNM.
- c. Verify that the licensee monitors the CAA with an intrusion alarm or other device or procedures to detect unauthorized penetrations or activities. (73.67(f)(2)).

d. Verify that the alarms, devices, or procedures used to monitor the CAA are adequate to allow the security organization to detect and respond to the threat.

e. Verify that all individuals whose duties include the use of these procedures are properly trained in their execution.

02.03 Access Control

a. Verify that all CAAs are clearly demarcated. (73.2(z))

b. Verify that access to the room containing the reactor vessel is controlled and the room is designated a CAA. (73.67(f)(1))

c. Determine if the licensee's access control procedures and mechanisms are capable of preventing the unauthorized entry of individuals or materials.

02.04 Response

a. Verify that there is a watchperson or offsite response force to respond to all unauthorized penetrations or activities. (73.67(f)(3)).

b. Verify that the licensee has established and maintains response procedures for dealing with threats of theft and theft of SNM. (73.67(f)(4)).

c. Verify that the licensee responds to indications of unauthorized removal of SNM (73.57(a)(2)(iii)).

d. Verify that all individuals with duties for responding to security emergencies are trained, equipped, and qualified to perform the response procedures, as appropriate.

02.05 Testing and Maintenance. Verify that the licensee periodically tests all security related devices and equipment.

81431-03 INSPECTION GUIDANCE

The inspector is not expected to test security equipment. However, sometimes a test is necessary to evaluate the effectiveness of the security system and to ensure compliance with requirements. In this situation, the inspector may conduct a test as long as it will not reduce facility safety or security, result in a violation of requirements or industry standards, or jeopardize the safety of the inspector or licensee employees. To conduct the test, the inspector must request the test through licensee management, and arrange to have a licensee employee conduct the test while the inspector observes.

03.01 Inspection Requirement 02.01 - Use and Storage. The CAA may be of temporary or permanent construction.

03.02 Inspection Requirement 02.02 - Detection and Surveillance

Alarms and other devices are used to monitor the CAAs when they are unoccupied and therefore must be appropriate in type, number, and application to ensure detection of unauthorized presence or activities during times when the CAA is unoccupied. If procedures are used in place of equipment, the procedures must be written and implemented in a manner that provides an equivalent level of protection.

03.03 System Design for Prevention of Theft. There are two types of theft of concern to the licensee, based on the amount and type of material. The measures taken to prevent or detect the theft, and the time allowed for discovery is also related to the amount and type of material as described below. (See Regulatory Guide 5.59)

(1) Gross theft of LEU. This includes material in amounts large enough that, with further enrichment or other processing, a clandestine fissile device (CFD) could be constructed. The licensee is expected to have systems capable of detecting this type of theft before the material is transported offsite.

(2) Minor Theft of LEU. This includes material in amounts less than that required to construct a CFD, but enough so that repeated thefts of similar amounts could produce sufficient material to do so. The licensee is expected to be able to detect thefts of such amounts soon enough after the fact to prevent the series of thefts from being carried out. For example, the licensee is not required to immediately detect a theft of only 20% of the amount necessary for a CFD. However, the systems intended to detect theft should be adequate to discover that material is missing (and assist in its location and recovery) before the adversary has an opportunity to commit five such thefts.

The licensee is only expected to detect thefts by an external adversary. However, the licensee's program should not be designed in a way that would permit an insider to remove material from the site without being detected.

03.04 Inspection Requirement 02.04 - Response

a. Although no specific requirements are presented in the rule to form a basis for determining the adequacy of offsite response forces, they should be capable of responding in a reasonable period of time and assisting in the location and recovery of missing or stolen SFP.

b. The procedures must be capable of explaining to a reasonably well-trained individual what steps must be taken to achieve the desired result. Therefore, if the intent of a particular procedure is to notify the LLEA, it must contain telephone numbers of the

instructions for the use of equipment other than the telephone. The fairest test of the adequacy of procedures is to have them carried out by one or more of the individuals expected to have to resort to them during the course of their duties. If the individual(s) is(are) unsuccessful at carrying out the action explained by the procedure, the inspector must determine whether the problem is related to poor procedures, poor training, or poor execution.

- 03.05 Training in Procedures. Individuals must be trained in the use of the procedures which they may need in the conduct of their duties. The training must be sufficiently complete to ensure that the individual can conduct the activity for which the procedure was written either (1) without the procedure, or (2) with relative ease using the procedure. Employees with security responsibilities are not expected to know the content and conduct of procedures which they will never be called upon to carry out, but must be familiar with procedures involving the individual's primary duties as well as back-up responsibilities.

81431-04 REFERENCES

- NUREG/CR-027, "Capability for Intrusion Detection at Nuclear Fuel Sites"
NUREG-0320, "Interior Intrusion Alarm Systems"
NUREG/CR-0360, "Physical Protection of Nuclear Facilities"
NUREG/CP-2492, "Special Nuclear Material Self-Protection Criteria Investigation"
Regulatory Guide 5.12, "General Use of Locks in the Protection and Control of Facilities and Special Nuclear Material"
Regulatory Guide 5.14, "Use of Observation (Visual Surveillance) Techniques in Material Access Areas"
Regulatory Guide 5.15, "Security Seals for the Protection and Control of Special Nuclear Material"
Regulatory Guide 5.59, "Standard Format and Content for a Licensee Physical Security Plan for the Protection of Special Nuclear Material of Moderate or Low Strategic Significance"