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RULEMAKING ISSUE
(Affirmation)

February 13, 1998 SECY-98-024

FOR: The Commissioners

FROM: L. Joseph Callan
Executive Director for Operations

SUBJECT: FINAL AMENDMENTS TO 10 CFR PARTS 60, 72, 73, 74, AND 75, "PHYSICAL PROTECTION FOR SPENT NUCLEAR FUEL AND HIGH-LEVEL RADIOACTIVE WASTE"

PURPOSE:

To obtain Commission approval to publish final amendments to 10 CFR Parts 60, 72, 73, 74, and 75 in the Federal Register that clarify and make consistent physical protection requirements for the independent storage of spent nuclear fuel and high-level radioactive waste licensed under 10 CFR Part 72.

BACKGROUND:

A proposed rule was published for public comment in the Federal Register on August 15, 1995 (60 FR 42079) with the primary objective of establishing a cohesive set of physical protection requirements for the storage of spent fuel and high-level radioactive waste. Various minor amendments involving material control and accounting and International Atomic Energy Agency activities were included. The amendments proposed to codify and consolidate, under Part 73, "Protection of Plants and Material," the various regulations and current practices used to perform physical protection licensing reviews of affected facilities. As proposed, affected licensees were those that store spent fuel and high-level radioactive waste at independent spent fuel storage installations (ISFSIs), power reactors that have permanently ceased operations, monitored-retrievable storage installations, and operations areas of the geologic

CONTACT: Priscilla A. Dwyer, NMSS/FCSS
(301) 415-8110

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repository. In the final rule, the applicability section has been revised to delete licensees holding a 10 CFR Part 50 license because continued protection for spent fuel in storage pools at Part 50 sites is under study by the Office of Nuclear Reactor Regulation.

DISCUSSION:

Twenty comment letters were received on the proposed rule. An analysis of these comments is included in Attachment 1. Commenters included the Nuclear Energy Institute, one national laboratory, 15 nuclear utilities, the Environmental Protection Agency, and the Department of Energy. The Nuclear Regulatory Commission staff has addressed the comments by making a number of modifications to the proposed rule that: 1) decrease proposed requirements, 2) reduce redundancies, 3) add flexibility to implementation, and 4) clarify uncertainties. The resulting requirements contained in the final rule represent a level of physical protection significantly less than that required at operating power reactors. The five basic performance capabilities presented in the proposed rule remain unchanged. These performance capabilities are:

(1) Store the material only within a protected area (PA);
(2) Grant only authorized access to the PA;
(3) Detect and assess unauthorized penetrations and activities within the PA;
(4) Provide timely communication for response; and
(5) Establish and manage an effective security organization.

As part of this effort, the staff studied the need for protection against the malevolent use of a vehicle at facilities that store spent fuel and high-level radioactive waste under a 10 CFR Part 72 license (SECY 96-145). The results of the study and subsequent peer review indicate that there is no compelling justification to require vehicle bomb protection for those sites affected by the final rule. The possible need for continued protection against a vehicle bomb is among several related issues being evaluated for Part 50 licensees and which necessitates removal of this category of licensees from the final rule.

In directing the staff to publish the proposed rule (Staff Requirements Memorandum dated June 30, 1995), the Commission requested the staff to solicit specific comments on five questions dealing with the impact of the proposed rule on the public. The comments and staff recommended responses are summarized in Attachment 2.

The backfit rule in 10 CFR 50.109 does not apply to this final rulemaking because the rule does not impose new requirements on existing 10 CFR Part 50 licensees. The backfit rule in 10 CFR 72.62 may be applicable to one facility which has only one isolation zone exterior to the perimeter barrier. However, the NRC staff has identified alternative measures currently in place that provide an equivalent level of physical protection. The staff does not intend to require this facility to establish an interior isolation zone. Thus, no backfit occurs due to the new rule. Because 10 CFR 72.62 does not cover reporting and recordkeeping requirements, the inclusion of 10 CFR 73.61 in 10 CFR 73.71 event reporting is not a backfit.

Finally, the transfer of spent fuel from a reactor, licensed under 10 CFR Part 50 and subject to 10 CFR 73.55 physical protection requirements, to an ISFSI licensed under 10 CFR Part 72,

and its associated physical protection provisions (e.g., 10 CFR 73.51), is not a backfit. A new license under 10 CFR Part 72 is a matter of compliance with regulations. In all cases, a transition from 10 CFR 73.55 to 10 CFR 73.51 is a relaxation of requirements and not a backfit.

COORDINATION:

The Office of the General Counsel has no legal objection to this final rule. The Office of the Chief Financial Officer has reviewed this Commission Paper for resource impacts and has no objections. The Office of the Chief Information Officer has reviewed the rulemaking for information technology and information management implications and concurs in it. Advisory Committee on Reactor Safeguards (ACRS) staff indicate that they will recommend that the rule not be reviewed by the ACRS.

RECOMMENDATIONS:

That the Commission:

1. Approve the notice of final rulemaking for publication in the Federal Register (Attachment 1).

2. Certify that this rule if promulgated, will not have a significant economic impact on a substantial number of small entities, to satisfy requirements of the Regulatory Flexibility Act, 5 U.S.C. 605(b).3.

   Note:

   a. The final rule (Attachment 1) would become effective 180 days after publication in the Federal Register;

   b. NUREG 1619, "Standard Review Plan for Physical Protection Plans for the Storage of Spent Fuel and High-Level Radioactive Waste," has been developed and will be published in support of the rule (Attachment 3);

   c. The regulatory analysis for the rule has been revised to reflect public comment and will be made publicly available (Attachment 4);

   d. The Chief Counsel for Advocacy of the Small Business Administration will be informed of the certification regarding economic impact on small entities and the reasons for it as required by the Regulatory Flexibility Act;

   e. The appropriate Congressional committees will be informed (Attachment 5);

   f. That a public announcement will be issued (Attachment 6);

   g. That this final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). These requirements were approved by the Office of Management and Budget approval numbers 3150-0002, 3150-0055, 3150-0123, and 3150-0132;

h. That in accordance with the Small Business Regulatory Enforcement Act of 1996, this action is not a "major rule" and this determination will be submitted to the Congress, as required (Attachment 7);

i. That this rule has been reviewed for potential changes to the Criminal Penalties provisions and the NRC Enforcement Policy; and

j. That a summary of the final rule appeared in the Commission's Regulatory Agenda.

L. Joseph Callan
Executive Director
for Operations

Attachments:
1. Notice of Final Rule
2. Responses to Commission's Specific Questions
3. NUREG 1619 (SRP)
4. Regulatory Analysis
5. Congressional Letters
6. Public Announcement
7. SBREFA Letters

Commissioners' completed vote sheets/comments should be provided directly to the Office of the Secretary by COB Tuesday, March 2, 1998.

Commission Staff Office comments, if any, should be submitted to the Commissioners NLT February 24, 1998, with an information copy to the Office of the Secretary. If the paper is of such a nature that it requires additional review and comment, the Commissioners and the Secretariat should be apprised of when comments may be expected.

This paper is tentatively scheduled for affirmation at an Open Meeting during the Week of March 1, 1998. Please refer to the appropriate Weekly Commission Schedule, when published, for a specific date and time.

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ATTACHMENT 1

FEDERAL REGISTER NOTICE

[7590-01-P]

NUCLEAR REGULATORY COMMISSION

10 CFR Parts 60, 72, 73, 74 and 75

RIN: 3150 - AF32

Physical Protection for Spent Nuclear Fuel and High-Level Radioactive Waste

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission is amending its regulations to clarify physical protection requirements for spent nuclear fuel and high-level radioactive waste stored at independent spent fuel storage installations (ISFSIs), monitored-retrievable storage (MRS) installations, and geologic repository operations areas (GROAs). These amendments codify standards for protecting spent fuel at the various storage sites licensed under the Commission's regulations in 10 CFR Part 72.

EFFECTIVE DATE: (Insert 180 days after publication of this final rule in the Federal Register.)

FOR FURTHER INFORMATION CONTACT: Priscilla A. Dwyer, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone (301) 415-8110, e-mail PAD@NRC.GOV.

SUPPLEMENTARY INFORMATION:

I. Background.

On August 15, 1995 (60 FR 42079), the Commission published for public comment a proposed rule that would clarify its regulations on the physical protection of spent nuclear fuel and high-level radioactive waste. The proposed regulation would have applied to spent fuel and high-level radioactive waste stored at ISFSIs, power reactors that have permanently ceased reactor operations, MRS installations, and the GROA. The proposed rule stated that the requirements for physically protecting this type of material lacked clarity in defining which regulations were to be applied at these sites. This resulted in a non-cohesive regulatory base. The proposed rule would provide a set of performance-based requirements, consistent with current programs that are currently licensed and implemented at sites under a unified policy for physical protection.

The proposed rule also indicated that the Commission was studying the need for specific protection against the malevolent use of a vehicle at sites affected by the rule (this is discussed further under the "Protection Goal" heading). The rule also proposed a conforming amendment to 10 CFR Part 60 – to require material control and accounting (MC&A) measures at the GROA that would be identical to that required of ISFSIs under Part 72 . The proposed rule added a provision under 10 CFR Part 75 to clarify that if GROAs are subject to International Atomic Energy Agency (IAEA) safeguards, then NRC's nuclear material accounting and control regulations for implementing the "Agreement between the United States and the IAEA for the Application of Safeguards in the United States" apply. Finally, the Commission requested specific comment on five questions regarding impacts of the proposed regulation on licensees.

II. Summary and Analysis of Public Comments.

The proposed rule was subject to a 90-day public comment period which ended on November 13, 1995. Twenty letters of comment were received. Sources for these comments included a nuclear industry group [the Nuclear Energy Institute (NEI)]; one national laboratory; fifteen utilities involved in nuclear activities; two Federal agencies [the Environmental Protection Agency (EPA) and the Department of Energy (DOE)]; and one citizen's group. Twelve letters of comment explicitly endorsed, either in total or in part, the views expressed by the NEI. Four letters of comment, in part, supported the general objectives of the proposed rulemaking. Correspondence received from EPA indicated no comment. The comments have been grouped under the following general topics:

1. Protection Goal.
2. Basis for Requirements.
3. Required Level of Physical Protection.
4. Backfit and Regulatory Analysis.
5. Rule Language Specifics.
6. GROAs.
7. Staff-Generated Amendments.
8. Summary of Responses to Commission's Specific Questions.

1. Protection Goal.

Comment. Commenters noted that, although it was appropriate that a protection goal for spent fuel and high-level radioactive waste be defined, the protection goal needed to be less stringent than the codified design basis threat for radiological sabotage. It was further stated that a 10 CFR Part 100 release, the unofficial criterion for determining radiological sabotage of power reactors, would be extremely difficult to realize with respect to spent fuel and high-level radioactive waste. The citizen's group commented that any protection goal developed for spent fuel should also counter the malevolent use of an airborne vehicle.

Response. The NRC agrees that the establishment of a protection goal should be the first step in the development of any physical protection standards. One issue that may have caused confusion in the proposed rule is that the assumptions for determining "radiological sabotage" differ between Part 72, "Licensing Requirements for the Independent Storage of Spent Fuel and High-Level Radioactive Waste," and Part 73, "Physical Protection of Plants and Material." The differing assumptions are appropriate because "radiological sabotage," as used under Part 73, applies to a power reactor and implies the unofficial criterion of a Part 100 release for power reactors. "Radiological sabotage" as used under Part 72 applies to the storage of spent fuel and high-level radioactive waste and is based on the consequences of a design basis accident as defined under Part 72. Although the same term is used under both 10 CFR Parts; it is based on different assumptions and results in different levels of required protection. The Commission agrees that this is confusing and that "radiological sabotage," as used for operating reactors, is not an appropriate protection level for spent fuel and high-level radioactive waste. The Commission concludes that the protection goal is best characterized by the phrase: "protection against the loss of control of the facility that could be sufficient to cause radiation exposure exceeding the dose as described in 10 CFR 72.106." The final rule has been modified accordingly.

With regard to protection against the malevolent use of a land-based vehicle, NRC has determined, based on the opinions of expert study and a peer review of findings, that there is no compelling justification for requiring a vehicle barrier as perimeter protection for spent fuel and high-level radioactive waste stored under a Part 72 license. Inclusion of an airborne vehicle was assessed for possible inclusion into the protection goal for this rule. However, protection against this type of threat has not yet been determined appropriate at sites with greater potential consequences than spent fuel storage installations. Therefore, this type of requirement is not included within the protection goal for this final rule.

2. Basis for Requirements.

Comment. Commenters frequently questioned the need for tying Part 72 requirements to Part 73. The commenters assumed that by involving Part 73 in the rulemaking, it was implied that the level of physical protection normally attributed to power reactors was being required. Phraseology used in the proposed requirements, such as using the term "protected area," (PA) tended to further foster this impression.

Response. The Commission disagrees that placing requirements under Part 73 implies any association with the physical protection requirements for power reactors. It is noted that Part 73 provides, in one consolidated Part, all of the requirements for those facilities needing physical protection. This is one reason why an explicit requirement for the protection of spent fuel and high-level radioactive waste is being added to Part 73. Part 73 includes more stringent requirements for power reactor and Category I fuel cycle facilities and much less stringent requirements for the protection of Category III facilities. With regard to use of the term "protected area," the Commission has determined that the term is correctly used in review of its definition under 10 CFR 73.2. Nonetheless, the Commission has reviewed the physical protection terminology found in the final rule to ensure that it does not imply a different level of physical protection than intended.

3. Level of Physical Protection Needed.

Comment. Some commenters expressed the opinion that the level of physical protection described by the proposed amendments was unnecessary and overly burdensome. The industry group noted that what was truly needed was a level of physical protection comparable to "enhanced industrial security." Cited examples of this type of protection were: use of suitable fencing, locked access points, sufficient illumination, and periodic security patrols. Other commenters questioned the need for some of the redundancy that was included in the proposed rule. One citizen's group believed that physical protection measures should be more stringent than those described in the proposed rule.

Response. The Commission believes that the appropriate level of physical protection for spent fuel and high-level radioactive waste lies somewhere between industrial-grade security and the level that is required at operating power reactors. The Commission also notes that the nature of spent fuel and of its storage mechanisms offers unique advantages in protecting the material. This factor, along with revised consequence considerations, leads the Commission to conclude that physical protection at sites where spent fuel and high-level radioactive waste are stored under a 10 CFR Part 72 license can be more flexibly applied than previously proposed. Accordingly, the final rule has been revised to minimize redundancy and add flexibility. Specific changes are outlined in Section III, "Summary of Specific Changes Made to the Proposed Rule as a Result of Public Comment."

4. Backfit and Regulatory Analysis.

Comment. NEI and a few licensees commented that the proposed regulation imposes a generic backfit as defined under 10 CFR 50.109 and 72.62. The NRC asserted in the proposed rule that the amendments merely codified and standardized physical protection measures that, through license amendment, were already in place at existing sites. Hence, it was concluded that no backfit was involved. Commenters further stated that, in terms of backfit requirements, the cost to implement the proposed rule was not justified based on the potential increase in protection that the rule would afford public health and safety.

Other commenters specifically responded to the Regulatory Analysis that accompanied the rule. These commenters expressed concern that certain provisions of the regulatory analysis could turn into de facto requirements.

Additionally, it was recommended that affected sites should be "grandfathered" under any final rulemaking. Accordingly, these sites would not be required to meet the provisions of the new physical protection rule because an adequate level of physical protection was already in place at the site, based on an NRC-approved physical protection plan.

Response. Under the proposed rule, the Commission stated that the backfit rule in 10 CFR 50.109 did not apply because the amendments did not impose any additional

requirements on Part 50 licensees. Furthermore, the Commission notes that all references to Part 50 licensees are deleted in the final rule.

The Commission further stated that the backfitting requirements in 10 CFR 72.62 did not apply because the proposed amendments neither imposed nor modified procedures or organizations of ISFSIs licensed under Part 72. The Commission considers these statements true based on their assessment of the proposed regulation and its intended implementation. However, on further review, the backfit rule in 10 CFR 72.62 may be applicable to one facility which has only one isolation zone exterior to the perimeter barrier. The NRC staff has identified alternative measures currently in place that provide an equivalent level of physical protection. The staff does not intend to require this facility to establish an interior isolation zone. Thus, no backfit occurs due to the new rule. Because 10 CFR 72.62 does not cover reporting and recordkeeping requirements, the inclusion of 10 CFR 73.51 in 73.71 event reporting is not a backfit.

With respect to grandfathering existing sites, the Commission believes that implementation of this final rule at these sites presents no undue burden to affected licensees and provides a minimum level of physical protection to adequately protect the public health and safety. Accordingly, there is no need for a grandfathering provision and no change has been made in the final rule in response to this comment. The Commission notes that the Regulatory Analysis for the final rule has been revised to reflect changes made in response to public comment and to eliminate ambiguities.

5. Rule Language Specifics.

Comment. A variety of comments were received regarding specific rule terminology. The suggestion was made that the term "protected area" be revised to "ISFSI controlled access area."

Response. As indicated previously in this notice, the use of the term "protected area (PA)," is consistent with its definition in 10 CFR 73.2. Furthermore, because it is the Commission's position that a site where spent fuel and high-level radioactive waste is stored be surrounded by

a fence, it is not considered adequate to call the enclosure a controlled access area (CAA). Under 10 CFR 73.2, the definition of a CAA requires only a demarcation of the area, not a fence.

Comment. Another commenter supported the Commission position that operating power reactor licensees that store spent fuel under a general license should have the option of using the physical protection measures of either 10 CFR 72.212(b)(5) or the proposed 10 CFR 73.51. The commenter also questioned whether the requirements of 10 CFR 72.182, 72.184, and 72.186 apply to a general license, in addition to Subpart K. A related question requested clarification on how general license holders were to notify NRC regarding which option they would exercise.

Response. The Commission notes that a licensee having a Part 50 license does not fall within the scope of the final rule. The Commission believes it is premature to bring these licensees under the provisions of the final rule because continued protection for spent fuel in storage pools at Part 50 sites is currently under study by the NRC.

Comment. One commenter requested clarification on the specific exclusion of an exemption for ISFSIs from the malevolent use of a vehicle threat within the design basis threat. The commenter indicated that it was not readily apparent and also a cumbersome process to determine the current exempt status of an ISFSI under present regulations.

Response. The Commission agrees and has revised the text of the rule to exclude reference to the design basis threat described under 10 CFR 73.1.

Comment. One commenter questioned whether the proposed rule would apply to a permanently shutdown power plant where spent fuel is stored and operating with a Part 50 possession-only license.

Response. A facility with a Part 50 license is not subject to the provisions of the final rule. This revision to the final rule has been made because the Commission believes it is premature

to include these licensees within the scope of the rule because continued protection for spent fuel in storage pools at Part 50 sites is currently under study by the NRC.

Comment. A commenter requested clarification on the need for back-up power for physical protection-related equipment.

Response. The Commission believes that affected licensees should not be vulnerable to loss of offsite power. Thus, it is necessary for licensees to assure either continuous operation of required physical protection equipment during power failure or to demonstrate the ability to provide immediate compensation for such failures.

Comment. Required illumination levels, assessment techniques, required frequency of physical protection patrols, and searches before entry to the PA were all subjects of comment. A commenter suggested that illumination be provided only during periods of assessment and that the entire PA need not be illuminated to a level of 0.2 footcandle.

Response. The Commission agrees that illumination to a 0.2 footcandle level represents a large operating cost and may be difficult to achieve, given cask structure. This provision has been amended to more clearly indicate that, while illumination should be maintained during all periods of darkness, only an adequate level of illumination is required within the PA for the detection assessment means used. In addition, required performance capabilities regarding detection are clarified in the final rule by specifying the use of active intrusion detection equipment, as opposed to passive systems.

Comment. Some commenters noted that the frequency of patrols should coincide with watchmens' duty shift lengths, as opposed to once every eight hours as recommended in the proposed rule.

Response. The Commission does not agree that the frequency of patrols should coincide with duty shift lengths. However, the Commission agrees that some flexibility can be provided. Accordingly, this provision of the final rule is revised to require daily random patrols, only.

Comment. Licensees cited the burden of maintaining expensive and delicate explosives detection equipment to meet the proposed requirement for explosives searches conducted before entry to the PA.

Response. The Commission agrees. To clarify this issue, the Commission has revised the proposed rule to require only a visual search for explosives. Because pedestrian and vehicular traffic is not expected to be high volume at facilities affected by the rule, this type of search is not considered an undue burden to affected licensees. Furthermore, the amount of explosives that may cause a radiological release is not easily concealed.

Comment. Other commenters noted redundant records retention requirements in 10 CFR 72.180 and 10 CFR 73.51 (c).

Response. This concern has been corrected in the final rule.

Comment. One commenter noted an apparent contradiction in the proposed regulation regarding use of deadly force in the protection of an ISFSI. The commenter had been advised by NRC staff that use of deadly force was not expected of members of the security organization at ISFSIs. The commenter reasoned that this was not consistent with the requirement to protect against radiological sabotage under the proposed rule.

Response. The issue involving the use of the term radiological sabotage has been resolved as discussed previously. Further, the Commission never intended that onsite physical protection personnel at an ISFSI would provide a response to a safeguards event other than calling for assistance from local law enforcement or other designated response force unless their timely response could not be ensured. The Commission also notes that 10 CFR 73.51 only calls for unarmed watchmen, not armed guards.

Comment. Commenters believe that the requirements for redundant alarm monitoring stations and specified staffing levels for the primary alarm station are overly burdensome and unnecessary.

Response. The Commission agrees that the requirement for redundant alarm stations is excessive. Regarding alarm monitoring, this provision is revised in the final rule to require, in the redundant location, only a summary indication that an alarm has been generated. This location need not necessarily be located onsite and could, for example, be a simple readout in a continually-staffed local law enforcement agency office. This is contingent on the assurance that communications with the local law enforcement agency or the designated response force can be maintained. Regarding required staffing levels of the primary alarm station, the Commission has deleted the specific requirement that the physical protection organization be comprised of at least two watchmen from the final rule. This deletion is contingent on the Commission's expectation that a human presence be maintained in the primary alarm station at all times. To achieve this, the Commission clarifies its position that the primary alarm station must be located within the PA, be bullet-resisting, and be configured such that activities within the station are not visible from outside the PA. The intent of these measures is to ensure that a single act cannot destroy the capability of an onsite watchman to call for assistance. The final rule has been modified accordingly.

Comment. Finally, concerning the actual terminology and format of the proposed rule, commenters expressed support for its performance-based nature but rejected the set of provisions under 10 CFR 73.51(d) as being overly prescriptive.

Response. The Commission responds that the proposed regulation found in 10 CFR 73.51 (d) is needed to provide additional clarity in meeting the performance capabilities in 10 CFR 73.51(b) and notes that many of the physical protection measures described under 10 CFR 73.51(d) are relaxed in the final rule and are less prescriptive in a number of cases.

6. GROA.

Comment. Two comments were received from DOE on the amendments to Part 60 dealing with the geologic repository. The first commenter requested that it be emphasized in the "Statement of Considerations" for the final rule that the requirement for physical protection of GROAs be applicable only during their operational phases and not after closure.

Response. The Commission agrees with this observation and has clarified the exemption in the final rule to specifically exempt GROAs from the requirements of 10 CFR 73.51 after permanent closures.

Comment. The second commenter requested clarification on apparent conflicts in Part 60, "Disposal of High-Level Radioactive Waste in Geologic Repositories," regarding the level of detail required of physical protection plans during the different phases of the certification process.

Response. The Commission notes that NUREG 1619, "Standard Review Plan for Physical Protection Plans for the Storage of Spent Fuel and High-Level Radioactive Waste," to be issued concurrently with the effective date of the final rule, will contain guidance in this area.

7. NRC Staff-Generated Amendments.

Subsequent to publication of the proposed rule, a technical issue arose involving the cooling time of spent fuel as it relates to the degree of physical protection needed. Because a response to this issue continues to evolve within the NRC, the Commission believes it would be inappropriate to apply the provisions of the final rule at this time to a licensee holding a 10 CFR Part 50 license. Hence, licensees holding a 10 CFR Part 50 license are not within the scope of the final rule. Further, review indicated that there was some confusion pertaining to MC&A requirements for ISFSIs. Specifically, the NRC staff asked if ISFSIs were exempt from the requirements of 10 CFR 74.51 and, if not, why not. Specific MC&A requirements for ISFSIs are found under Part 72. After consideration of the issue, for clarification, the NRC staff has included an amendment to 10 CFR Part 74 that specifically exempts ISFSIs from 10 CFR 74.51 in the final rule.

8. Summary of Responses to Commission's Specific Questions.

Question 1. Would the proposed amendments impose any significant additional costs for safeguards of currently stored spent nuclear fuel beyond what is now incurred for that purpose?

Summary of Responses. Five responses from nuclear utilities specifically addressed this issue. All indicated that the amendments, as proposed, would significantly increase costs. Manpower-intensive measures, such as the requirement to maintain a minimum of two watchmen per shift, were most often cited as creating an undue burden. One licensee estimated costs of $1 to 2 million to implement, and a continuing cost increase of 30-50 percent, annually, to physical protection operations.

NRC Response. Licensees holding a 10 CFR Part 50 license are no longer within the scope of this rule. The final rule has been revised to minimize redundancy and add flexibility to its implementation. There should be no significant increase in cost to current licensees.

Question 2. Is there reason to expect the costs to future licensees to differ substantially from those of current licensees?

Summary of Responses. Four responses from nuclear utilities specifically addressed this issue. Three utilities cited both higher current and annual operating costs. One utility noted that, to the extent that current licensees have been required to commit to the practices recommended in the proposed rule in initial licensing, there is no anticipated difference in cost.

NRC Response. Licensees holding a 10 CFR Part 50 license are no longer within the scope of this rule. The final rule has been amended to be more consistent with physical protection implemented at sites with currently-approved physical protection plans. Hence, there should be no significant increase in costs to future licensees.

Question 3. Are the cost estimates in Table III of the Draft Regulatory Analysis representative of current industry experience? Are there significant costs that have not been included in the table?

Summary of Responses. Three responses from nuclear utilities specifically addressed this issue. One respondent indicated that the cost estimates in Table III of the "Draft Regulatory Analysis" are sufficiently broad to address industry experience. However, the inclusion of a continual surveillance system is not covered and the respondent suggested that it should be a

separate line item. Another respondent indicated that the cost estimates appear to be comprehensive except they do not include construction and maintenance of physical protection office space, a records retention area, and alarm station(s).

NRC Response. The "Regulatory Analysis" has been revised to reflect public comment to include any omissions or changes made to the final rule.

Question 4. Are the costs justified by the benefits that would be afforded by the proposed amendments? Are there alternatives that would afford essentially the same benefits but be more cost-effective?

Summary of Responses. Three responses from nuclear utilities specifically addressed this issue. All three indicated that the costs were not justified by the benefits derived from the proposed rule. One respondent stated that the individual measures of 10 CFR 73.51(d) have merit, but, when taken in aggregate, they are not necessary to protect public health and safety. This respondent further stated that redundancy in the proposed rule was not needed and the rulemaking should give affected licensees latitude in selecting and justifying the means of physical protection. Alternatives that were suggested involved the deletion of specific provisions of the proposed rule and also the restructuring of the rule so as to not group all ISFSIs under one set of physical protection criteria.

NRC Response. The Commission has revised the requirements of the proposed rule to eliminate unnecessary redundancies, add flexibility in implementation, and reduce manpower-intensive measures while maintaining an adequate level of physical protection.

Question 5. Are the proposed amendments to 10 CFR 73.51 appropriate for an MRS or geologic repository operated by DOE?

Summary of Response. NEI was the only respondent to this issue. NEI noted that NRC should be mindful of the evolving nature of MRS installations and the geologic repository in the development of physical protection regulations for these sites.

NRC Response. NRC staff continues to work closely with DOE staff in the development of the certification process for MRS installations and the GROA.

III. Summary of Specific Changes Made to the Proposed Rule as a Result of Public Comment.

Major changes made to the proposed rule include:

(1) The incorporation of a protection goal, and

(2) Regarding required levels of physical protection, redundancies have been reduced, flexibility added, and manpower intensive measures minimized, for example --

- Regarding alarm monitoring, the redundant alarm station need only provide a summary indication at a continually staffed location;
- Redundant records retention has been eliminated;
- The required staffing level for the security organization has been eliminated and required siting and configuration of the primary alarm station clarified;
- Hand-held equipment searches for explosives are replaced with visual searches; and
- Illumination levels need only permit adequate assessment of the PA according to the assessment means used. Detection equipment must be active in nature.

As discussed previously, the final rule does not apply to a licensee holding a 10 CFR Part 50 license.

A section-by-section comparison of the proposed and final rules follows.

Part 60 - - Disposal of High-Level Radioactive Wastes in Geologic Repositories.

1. Section 60.21, Content of application. This section is unchanged from the proposed rule.

2. Section 60.31, Construction authorization. This section is unchanged from the proposed rule.

3. Section 60.41, Standards for issuance of a license. This section is unchanged from the proposed rule.

4. Section 60.78, Material control and accounting records and reports. This section is unchanged from the proposed rule.

Part 72 - - Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste

5. Section 72.24, Contents of application: Technical information. This section is unchanged from the proposed rule. The term "radiological sabotage" is based on Part 72 assumptions and not a Part 100 radiological release.

6. Section 72.180, Physical security plan. This section is unchanged from the proposed rule except for changing the title to Physical Protection Plan to be consistent with 10 CFR Part 73.

7. Section 72.212, Conditions of general license issued under §72.210. Revisions to this section have been deleted in their entirety.

Part 73 - - Physical Protection of Plants and Materials

8. Section 73.1, Purpose and Scope. Paragraph (b)(6) is unchanged from the proposed rule.

9. Section 73.50, Requirements for physical protection of licensed activities. This section remains unchanged from the proposed rule.

10. Section 73.51, Requirements for the physical protection of stored spent nuclear fuel and high-level radioactive waste. Paragraph (a), Applicability, has been revised to more precisely define the type of material affected by the rule and to eliminate 10 CFR Part 50 licensees from the provisions of the rule..

Paragraph (b)(3), General Performance Objectives, has been revised to read: "The physical protection system must be designed to protect against loss of control of the facility that could be sufficient to cause radiation exposure exceeding the dose as described in 10 CFR 72.106." This revised statement describes a more appropriate protection goal that is consistent with Part 72. It also allows for a physical protection system less stringent than required to protect against radiological sabotage at operating power reactors.

In paragraph (d), Physical protection systems, subsystems, components, and procedures, the introductory text has been revised to read as follows: "The following systems, subsystems, components and procedures are methods acceptable to NRC for meeting the performance capabilities of §73.51(b)(2)." This change has been made to underscore that the methods described in §73.51(d) are acceptable for meeting the performance capabilities of the rule. Other methods may be acceptable, if approved by NRC.

In paragraph (d)(1), the last sentence has been deleted because it is no longer necessary due to the revision cited in the previous paragraph above.

Paragraph (d)(2) has been revised to read: "Illumination must be sufficient to permit adequate assessment of unauthorized penetrations of or activities within the protected area." This revision has been made to permit flexibility in illumination levels.

Paragraph (d)(3) has been revised to read: "The perimeter of the protected area must be subject to continual surveillance and be protected by an active intrusion alarm system that is capable of detecting penetration through the isolation zone and that is monitored in a continually staffed primary alarm station located within the protected area, and in one additional continually staffed location to ensure that a single act cannot destroy the capability of the onsite watchman to call for assistance. The primary alarm station must be located within the protected area; have bullet-resisting walls, doors, ceiling, and floor; and the interior of the station must not be visible from outside the protected area. A timely means for assessment must also be provided. Regarding alarm monitoring, the redundant location need only provide a summary indication that an alarm has been generated." This clarifies the Commission's position that the necessary level of protection should ensure that a single act cannot destroy the capability of the onsite watchman to call for assistance.

Paragraph (d)(4) has been revised to reduce the frequency of patrol from "not less than once every 8 hours" to "daily random patrols" with additional discussion provided in guidance issued to support the rule.

Paragraph (d)(5) has been revised to read: "A security organization with written procedures must be established. The security organization must include sufficient personnel per shift to provide for monitoring of detection systems and the conduct of surveillance, assessment, access control, and communications to assure adequate response. Members of the security organization must be trained, equipped, qualified and requalified to perform assigned job duties in accordance with Appendix B to Part 73, I.A, (1) (a) and (b); B(1)(a); and the applicable portions of II." This change eliminates a required staffing level and describes qualification and training levels for watchmen, only, as the primary members of the security organization.

Paragraph (d)(6) has been changed to require "timely" response from the designated response forces. If timely response cannot be provided, additional protective measures may be required, to include use of armed guards.

Paragraph (d)(7) has been deleted.

Paragraph (d)(8) has been redesignated as paragraph (d)(7) and revised to read as follows: "A personnel identification system and a controlled lock system must be established and maintained to limit access to authorized individuals." This eliminates the unnecessary coupling of the identification system with the system used for key and lock control as requested by commenters.

Paragraph (d)(9) has been deleted. If a person is authorized access to the PA, properly identified, and subject to search, there is no need for the individual to be escorted.

Paragraph (d)(10) has been redesignated as paragraph (d)(8). Regarding communications, the term "security organization" has been revised to "onsite security force members" to more precisely define communication channels.

Paragraph (d)(11) has been redesignated as paragraph (d)(9) and revised to read as follows: "All individuals, vehicles and hand-carried packages entering the protected area must be checked for proper authorization and visually searched for explosives before entry." This is permissible because the amount of explosives needed to cause a radiological release is not easily concealable.

Paragraph (d)(12) has been redesignated as paragraph (d)(10). The text of this paragraph is unchanged from the proposed rule.

Paragraph (d)(13) has been redesignated as paragraph (d)(11)and revised to read as follows: "All detection systems, surveillance/ assessment systems, and supporting subsystems including illumination systems must be tamper-indicating with line supervision and be maintained in operable condition. Timely compensatory measures must be taken after

discovery of inoperability to assure that the effectiveness of the physical protection system is not reduced."

Paragraph (d)(14) has been redesignated as paragraph (d)(12) and remains unchanged from the proposed rule.

Paragraph (d)(15) has been redesignated as paragraph (d)(13). This provision has been added to assure that duplication of records under §72.180 is not required. Paragraph (d)(13)(ii) has been revised to read as follows: "Screening records of members of the security organization." Finally, the log of patrols must contain all patrols, not just routine patrols.

Paragraph (e) has been revised for clarity.

11. Section 73.71, Reporting of safeguards events, remains unchanged from the proposed rule.

Part 74 - - Material Control and Accounting of Special Nuclear Material.

12. In Section 74.51, Nuclear material control and accounting for special nuclear material, paragraph (a) has been revised to read as follows: "General performance objectives. Each licensee who is authorized to possess five or more formula kilograms of strategic special nuclear material (SSNM) and to use such material at any site, other than a nuclear reactor licensed pursuant to Part 50 of this chapter, an irradiated fuel reprocessing plant, an operation involved with waste disposal, or an independent spent fuel storage facility licensed pursuant to Part 72 of this chapter, shall establish, implement, and maintain a Commission approved material control and accounting (MC&A) system that will achieve the following objectives..." This paragraph specifically exempts Part 72 ISFSIs from the requirements of 10 CFR 74.51.

Part 75 - - Safeguards on Nuclear Material - Implementation of US/IAEA Agreement.

13. Section 75.4, Definitions, remains unchanged from the proposed rule.

Criminal Penalties

NRC notes that these final amendments are issued under Sections 161b and i of the Atomic Energy Act of 1954, as amended. Therefore, violation of these regulations may subject a person to criminal sanctions under section 223 of the Atomic Energy Act.

Environmental Impact: Categorical Exclusion

The Commission has determined that this final rule is the type of action described as a categorical exclusion in 10 CFR 51.22(c)(3)(i) and (iii). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this final rule.

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). These requirements were approved by the Office of Management and Budget (OMB), approval numbers 3150-0002, 3150-0055, 3150-0123, and 3150-0132.

Public Protection Notification

If an information collection does not display a currently valid OMB control number, the NRC may not conduct and a person is not required to respond to, the information collection.

Regulatory Analysis

The Commission has prepared a "Final Regulatory Analysis" for this final rule. The final analysis examines the benefits and alternatives considered by the Commission. The "Final Regulatory Analysis" is available for inspection in the NRC Public Document room, 2120 L Street NW (Lower Level), Washington DC. Single copies of the analysis may be obtained from Priscilla A. Dwyer, Division of Fuel Cycle Safety and Safeguards, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001. The "Final Regulatory Analysis" is available for viewing and downloading from the NRC's rulemaking bulletin board.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act, 5 U.S.C. 605(b), the Commission certifies that this rule does not have a significant economic impact on a substantial number of small entities. The final rule affects operators of ISFSIs and DOE as the operator of the MRS and GROA. The affected licensees do not fall within the scope of the definition of "small entities" set forth in Section 601(3) of the Regulatory Flexibility Act, or the NRC's size standards (10 CFR 2.810).

Small Business Regulatory Enforcement Fairness Act

In accordance with the Small Business Regulatory Enforcement Fairness Act of 1996, NRC has determined that this action is not a "major rule" and has verified this determination with the Office of Information and Regulatory Affairs of OMB.

Backfit Analysis

The Commission has determined that the backfit rule in 10 CFR 50.109 does not apply because this final rule does not impose new requirements on existing 10 CFR Part 50 licensees. The backfit rule in 10 CFR 72.62 may be applicable to one facility which has only one isolation zone exterior to the perimeter barrier. However, the NRC staff has identified alternative measures currently in place that provide an equivalent level of physical protection. The staff does not intend to require this facility to establish an interior isolation zone. Thus, no backfit occurs due to the new rule. Because 10 CFR 72.62 does not cover reporting and recordkeeping requirements, the inclusion of 10 CFR 73.51 in 10 CFR 73.71 event reporting is not a backfit. Finally, the transfer of spent fuel from a reactor, licensed under 10 CFR Part 50 and subject to 10 CFR 73.55 physical protection requirements, to an ISFSI licensed under 10 CFR Part 72, and its associated physical protection provisions (e.g., 10 CFR 73.51) is not a backfit. A new licens[illegible] .0 CFR Part 72 is a matter of compliance with regulations. In all cases, transition from 10 CFR 73.55 to 73.51 is a relaxation of requirements and not a backfit.

List of Subjects

10 CFR Part 60

Criminal penalties, High-level waste, Nuclear power plants and reactors, Nuclear materials, Reporting and recordkeeping requirements, Waste treatment and disposal.

10 CFR Part 72

Manpower training programs, Nuclear materials, Occupational safety and health, Reporting and recordkeeping requirements, Security measures, Spent fuel.

10 CFR Part 73

Criminal penalties, Hazardous materials transportation, Export, Import, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements, Security measures.

10 CFR Part 74

Accounting, Criminal penalties, Hazardous materials transportation, Material control and accounting, Nuclear materials, Packaging and containers, Radiation protection, Reporting and recordkeeping requirements, Scientific equipment, Special nuclear material.

10 CFR Part 75

Criminal penalties, Intergovernmental relations, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements, Security measures.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553 the NRC is adopting the following amendments to 10 CFR Parts 60, 72, 73, 74, and 75.

PART 60 -- DISPOSAL OF HIGH-LEVEL RADIOACTIVE WASTES IN GEOLOGIC REPOSITORIES

1. The authority citation for Part 60 continues to read as follows:

AUTHORITY: Secs. 51, 53, 62, 63, 65, 81, 161, 182, 183, 68 Stat. 929, 930, 932, 933, 935, 948, 953, 954, as amended (42 U.S.C. 2071, 2073, 2092, 2093, 2095, 2111, 2201, 2232, 2233); secs. 202, 206, 88 Stat. 1244, 1246 (42 U.S.C. 5842, 5846); secs. 10 and 14, Pub. L. 95-601, 92 Stat. 2951 (42 U.S.C. 2021a and 5851); sec. 102, Pub. L. 91-190, 83 Stat. 853 (42 U.S.C. 4332); secs. 114, 121, Pub. L. 97-425, 96 Stat. 2213g, 2228, as amended (42 U.S.C. 10134, 10141) and Pub. L. 102-486, sec 2902, 106 Stat. 3123 (42 U.S.C. 5851).

2. In §60.21, paragraphs (b)(3), (b)(4), and (c)(10) are revised to read as follows:

<u>§60.21 Content of application</u>.

* * * * *

(b) ***

(3) A detailed plan to provide physical protection of high- level radioactive waste in accordance with §73.51 of this chapter. This plan must include the design for physical protection, the licensee's safeguards contingency plan, and security organization personnel training and qualification plan. The plan must list tests, inspections, audits, and other means to be used to demonstrate compliance with such requirements.

(4) A description of the program to meet the requirements of §60.78.

* * * * *

(c) ***

(10) A description of the program to be used to maintain the records described in §§60.71 and 60.72.

* * * * *

3. In §60.31, paragraph (b) is revised to read as follows:

<u>§60.31 Construction authorization</u>.

* * * * *

(b) Common defense and security. That there is reasonable assurance that the activities proposed in the application will not be inimical to the common defense and security.

* * * * *

4. In §60.41, paragraph (c) is revised to read as follows:

<u>§60.41 Standards for issuance of license</u>.

* * * * *

(c) The issuance of the license will not be inimical to the common defense and security and will not constitute an unreasonable risk to the health and safety of the public.

* * * * *

5. A new §60.78 is added to read as follows:

§60.78 Material control and accounting records and reports.

DOE shall implement a program of material control and accounting (and accidental criticality reporting) that is the same as that specified in §§ 72.72, 72.74, 72.76, and 72.78 of this chapter.

PART 72 – LICENSING REQUIREMENTS FOR THE INDEPENDENT STORAGE OF SPENT NUCLEAR FUEL AND HIGH-LEVEL RADIOACTIVE WASTE

6. The authority citation for Part 72 continues to read as follows:

AUTHORITY: Secs. 51, 53, 57, 62, 63, 65, 69, 81, 161, 182, 183, 184, 186, 187, 189, 68 Stat. 929, 930, 932, 933, 934, 935, 948, 953, 954, 955, as amended, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2071, 2073, 2077, 2092, 2093, 2095, 2099, 2111, 2201, 2232, 2233, 2234, 2236, 2237, 2238, 2282); sec. 274, Pub. L. 86-373, 73 Stat. 688, as amended (42 U.S.C. 2021); sec. 201, as amended, 202, 206, 88 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5846); Pub. L. 95-601, sec. 10, 92 Stat. 2951 as amended by Pub. L. 102-486, sec. 7902, 106 Stat. 3123 (42 U.S.C. 5851); sec. 102, Pub. L. 91-190, 83 Stat. 853 (42 U.S.C. 4332); secs. 131, 132, 133, 135, 137, 141, Pub. L. 97-425, 96 Stat. 2229, 2230, 2232, 2241, sec. 148, Pub. L. 100-203, 101 Stat. 1330-235 (42 U.S.C. 10151, 10152, 10153, 10155, 10157, 10161, 10168).

Section 72.44(g) also issued under secs. 142(b) and 148(c), (d), Pub. L. 100-203, 101 Stat. 1330-232, 1330-236 (42 U.S.C. 10162(b), 10168(c), (d)). Section 72.46 also issued under sec. 189, 68 Stat. 955 (42 U.S.C. 2239); sec. 134, Pub. L. 97-425, 96 Stat. 2230 (42 U.S.C.

10154). Section 72.96(d) also issued under sec. 145(g), Pub. L. 100-203, 101 Stat. 1330-235 (42 U.S.C. 10165(g)). Subpart J also issued under secs. 2(2), 2(15), 2(19), 117(a), 141(h), Pub. L. 97-425, 96 Stat. 2202, 2203, 2204, 2222, 2224 (42 U.S.C. 10101, 10137(a), 10161(h)). Subparts K and L are also issued under sec. 133, 98 Stat. 2230 (42 U.S.C. 10153) and sec. 218(a), 96 Stat. 2252 (42 U.S.C. 10198).

7. In §72.24, paragraph (o) is revised to read as follows:

§ 72.24 Contents of application: Technical information.

* * * * *

(o) A description of the detailed security measures for physical protection, including design features and the plans required by Subpart H. For an application from DOE for an ISFSI or MRS, DOE will provide a description of the physical protection plan for protection against radiological sabotage as required by Subpart H.

* * * * *

8. Section 72.180 is revised to read as follows:

§ 72.180 Physical protection plan.

The licensee shall establish, maintain, and follow a detailed plan for physical protection as described in §73.51 of this chapter. The licensee shall retain a copy of the current plan as a record until the Commission terminates the license for which the procedures were developed and, if any portion of the plan is superseded, retain the superseded material for 3 years after each change or until termination of the license. The plan must describe how the applicant will meet the requirements of §73.51 of this chapter and provide physical protection during on-site transportation to and from the proposed ISFSI or MRS and include within the plan the design for physical protection, the licensee's safeguards contingency plan, and the security

organization personnel training and qualification plan. The plan must list tests, inspections, audits, and other means to be used to demonstrate compliance with such requirements.

PART 73 – PHYSICAL PROTECTION OF PLANTS AND MATERIALS

9. The authority citation for Part 73 continues to read as follows:

AUTHORITY: Secs. 53, 161, 68 Stat. 930, 948, as amended, sec. 147, 94 Stat. 780 (42 U.S.C. 2073, 2167, 2201); sec. 201, as amended, 204, 88 Stat. 1242, as amended, 1245, sec. 1701, 106 Stat. 2951, 2952, 2953 (42 U.S.C. 5841, 5844, 2297f).

Section 73.1 also issued under secs. 135, 141, Pub. L. 97-425, 96 Stat. 2232, 2241 (42 U.S.C, 10155, 10161). Section 73.37(f) also issued under sec. 301, Pub. L. 96-295, 94 Stat. 789 (42 U.S.C. 5841 note). Section 73.57 is issued under sec. 606, Pub. L. 99-399, 100 Stat. 876 (42 U.S.C. 2169).

10. In §73.1, paragraph (b)(6) is revised to read as follows:

<u>§73.1 Purpose and scope</u>.

* * * * *

(b) ***

(6) This part prescribes requirements for the physical protection of spent nuclear fuel and high-level radioactive waste stored in either an independent spent fuel storage installation (ISFSI) or a monitored retrievable storage (MRS) installation licensed under Part 72 of this chapter, or stored at the geologic repository operations area licensed under Part 60 of this chapter.

* * * * *

11. The introductory text of §73.50 is revised to read as follows:

§73.50 Requirements for physical protection for licensed activities.

Each licensee who is not subject to §73.51, but who possesses, uses, or stores formula quantities of strategic special nuclear material that are not readily separable from other radioactive material and which have total external radiation dose rates in excess of 100 rems per hour at a distance of 3 feet from any accessible surfaces without intervening shielding other than at a nuclear reactor facility licensed pursuant to Part 50 of this chapter, shall comply with the following:

* * * * *

12. A new §73.51 is added to read as follows:

§73.51 Requirements for the physical protection of stored spent nuclear fuel and high-level radioactive waste.

(a) Applicability. Notwithstanding the provisions of §§73.20, 73.50, or 73.67, the physical protection requirements of this section apply to each licensee that stores spent nuclear fuel and high-level radioactive waste pursuant to paragraphs (a)(1)(i), (ii), and (2) of this section. This includes --

(1) Spent nuclear fuel and high-level radioactive waste stored under a specific license issued pursuant to Part 72 of this Chapter:

(i) At an independent spent fuel storage installation (ISFSI) or

(ii) At a monitored retrievable storage (MRS) installation; or

(2) Spent nuclear fuel and high-level radioactive waste at a geologic repository operations area (GROA) licensed pursuant to Part 60 of this Chapter;

(b) General performance objectives.

(1) Each licensee subject to this section shall establish and maintain a physical protection system with the objective of providing high assurance that activities involving spent

nuclear fuel and high-level radioactive waste do not constitute an unreasonable risk to public health and safety.

(2) To meet the general objective of paragraph (b)(1) of this section, each licensee subject to this section shall meet the following performance capabilities.

(i) Store spent nuclear fuel and high-level radioactive waste only within a protected area;

(ii) Grant access to the protected area only to individuals who are authorized to enter the protected area;

(iii) Detect and assess unauthorized penetration of, or activities within, the protected area;

(iv) Provide timely communication to a designated response force whenever necessary; and

(v) Manage the physical protection organization in a manner that maintains its effectiveness.

(3) The physical protection system must be designed to protect against loss of control of the facility that could be sufficient to cause a radiation exposure exceeding the dose as described in §72.106 of this Chapter.

(c) Plan retention. Each licensee subject to this section shall retain a copy of the effective physical protection plan as a record for 3 years or until termination of the license for which procedures were developed.

(d) Physical protection systems, subsystems, components, and procedures. The following systems, subsystems, components and procedures are methods acceptable to NRC for meeting the performance capabilities of §73.51(b)(2).

(1) Spent nuclear fuel and high-level radioactive waste must be stored only within a protected area so that access to this material requires passage through or penetration of two physical barriers, one barrier at the perimeter of the protected area and one barrier offering substantial penetration resistance. The physical barrier at the perimeter of the protected area must be as defined in §73.2. Isolation zones, typically 20 feet wide each, on both sides of this barrier, must be provided to facilitate assessment. The barrier offering substantial resistance to penetration may be provided by an approved storage cask or building walls such as those of a reactor or fuel storage building.

(2) Illumination must be sufficient to permit adequate assessment of unauthorized penetrations of or activities within the protected area.

(3) The perimeter of the protected area must be subject to continual surveillance and be protected by an active intrusion alarm system which is capable of detecting penetrations through the isolation zone and that is monitored in a continually staffed primary alarm station and in one additional continually staffed location. The primary alarm station must be located within the protected area; have bullet-resisting walls, doors, ceiling, and floor; and the interior of the station must not be visible from outside the protected area. A timely means for assessment of alarms must also be provided. Regarding alarm monitoring, the redundant location need only provide a summary indication that an alarm has been generated.

(4) The protected area must be monitored by daily random patrols.

(5) A security organization with written procedures must be established. The security organization must include sufficient personnel per shift to provide for monitoring of detection systems and the conduct of surveillance, assessment, access control, and communications to assure adequate response. Members of the security organization must be trained, equipped, qualified, and requalified to perform assigned job duties in accordance with Appendix B to Part 73, sections I.A, (1) (a) and (b), B(1)(a), and the applicable portions of II.

(6) Documented liaison with a designated response force or local law enforcement agency (LLEA) must be established to permit timely response to unauthorized penetration or activities.

(7) A personnel identification system and a controlled lock system must be established and maintained to limit access to authorized individuals.

(8) Redundant communications capability must be provided between onsite security force members and designated response force or LLEA.

(9) All individuals, vehicles, and hand-carried packages entering the protected area must be checked for proper authorization and visually searched for explosives before entry.

(10) Written response procedures must be established and maintained for addressing unauthorized penetration of, or activities within, the protected area including Category 5, "Procedures," of Appendix C to Part 73. The licensee shall retain a copy of response procedures as a record for 3 years or until termination of the license for which the procedures

were developed. Copies of superseded material must be retained for 3 years after each change or until termination of the license.

(11) All detection systems, surveillance/assessment systems, and supporting subsystems, including illumination systems, must be tamper-indicating with line supervision and be maintained in operable condition. Timely compensatory measures must be taken after discovery of inoperability, to assure that the effectiveness of the security system is not reduced.

(12) The physical protection program must be reviewed once every 24 months by individuals independent of both physical protection program management and personnel who have direct responsibility for implementation of the physical protection program. The physical protection program review must include an evaluation of the effectiveness of the physical protection system and a verification of the liaison established with the designated response force or LLEA.

(13) The following documentation must be retained as a record for 3 years after the record is made or until termination of the license. Duplicate records to those required under §72.180 of Part 72 and §73.71 of this Part need not be retained under the requirements of this section:

(i) A log of individuals granted access to the protected area;

(ii) Screening records of members of the security organization;

(iii) A log of all patrols;

(iv) A record of each alarm received, identifying the type of alarm, location, date and time when received, and disposition of the alarm; and

(v) The physical protection program review reports.

(e) A licensee that operates a GROA is exempt from the requirements of this section for that GROA after permanent closure of the GROA.

13. In §73.71, paragraphs (b)(1) and (c) are revised to read as follows:

<u>§73.71 Reporting of safeguards events</u>.

* * * * *

(b)(1) Each licensee subject to the provisions of §§ 73.20, 73.37, 73.50, 73.51, 73.55, 73.60, or 73.67 shall notify the NRC Operations Center within 1 hour of discovery of the safeguards events described in paragraph I(a)(1) of Appendix G to this Part. Licensees subject to the provisions of §§73.20, 73.37, 73.50, 73.51, 73.55, 73.60, or each licensee possessing strategic special nuclear material and subject to §73.67(d) shall notify the NRC Operations Center within 1 hour after discovery of the safeguards events described in paragraphs I(a)(2), (a)(3), (b), and (c) of Appendix G to this Part. Licensees subject to the provisions of §§73.20, 73.37, 73.50, 73.51, 73.55, or 73.60 shall notify the NRC Operations Center within 1 hour after discovery of the safeguards events described in paragraph I(d) of Appendix G to this Part.

* * * * *

(c) Each licensee subject to the provisions of §§ 73.20, 73.37, 73.50, 73.51, 73.55, 73.60, or each licensee possessing SSNM and subject to the provisions of §73.67(d) shall maintain a current log and record the safeguards events described in paragraphs II (a) and (b) of Appendix G to this Part within 24 hours of discovery by a licensee employee or member of the licensee's contract security organization. The licensee shall retain the log of events recorded under this section as a record for 3 years after the last entry is made in each log or until termination of the license.

* * * * *

Part 74 – MATERIAL CONTROL AND ACCOUNTING OF SPECIAL NUCLEAR MATERIAL

14. The authority citation for Part 74 continues to read as follows:

AUTHORITY: Secs. 53, 57, 161, 182, 183, 68 Stat. 930, 932, 948, 953, 954, as amended, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2073, 2077, 2201, 2232, 2233, 2282, 2297f); secs. 201, as amended 202, 206, 88 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5846).

15. In § 74.51, the introductory text of paragraph (a) is revised to read as follows:

§74.51 Nuclear material control and accounting for special nuclear material.

(a) General performance objectives. Each licensee who is authorized to possess five or more formula kilograms of strategic special nuclear material (SSNM) and to use such material at any site, other than a nuclear reactor licensed pursuant to Part 50 of this chapter, an irradiated fuel reprocessing plant, an operation involved with waste disposal, or an independent spent fuel storage facility licensed pursuant to Part 72 of this chapter shall establish, implement, and maintain a Commission-approved material control and accounting (MC&A) system that will achieve the following objectives:

* * * * *

PART 75 -- SAFEGUARDS ON NUCLEAR MATERIAL - IMPLEMENTATION OF US/IAEA AGREEMENT

16. The authority citation for Part 75 continues to read as follows:

AUTHORITY: Secs. 53, 63, 103, 104, 122, 161, 68 Stat. 930, 932, 936, 937, 939, 948, as amended (42 U.S.C. 2073, 2093, 2133, 2134, 2152, 2201); sec. 201, 88 Stat. 1242, as amended (42 U.S.C. 5841).

Section 75.4 also issued under secs. 135, 141, Pub. L. 97-425, 96 Stat. 2232, 2241 (42 U.S.C. 10155, 10161).

17. In §75.4, paragraph (k)(5) is revised to read as follows:

§75.4 Definitions.

* * * * *

(k) ***

(5) Any location where the possession of more than 1 effective kilogram of nuclear material is licensed pursuant to Parts 40, 60, or 70 of this Chapter, or pursuant to an agreement state license.

* * * * *

Dated at Rockville, Maryland, this day of 1998.

For the Nuclear Regulatory Commission.

John C. Hoyle,
Secretary of the Commission

ATTTACHMENT 2

SUMMARY OF RESPONSES TO COMMISSION'S SPECIFIC QUESTIONS

SUMMARY OF RESPONSES TO COMMISSION'S SPECIFIC QUESTIONS

Question 1. Would the proposed amendments impose any significant additional costs for safeguards of currently stored spent nuclear fuel beyond what is now incurred for that purpose?

Summary of Responses. Five responses from nuclear utilities specifically addressed this issue. All indicated that the amendments, as proposed, would significantly increase costs. Manpower-intensive measures, such as the requirement to maintain a minimum of two watchmen per shift, were most often cited as creating an undue burden. One licensee estimated costs of $1 to 2 million to implement, and a continuing cost increase of 30-50 percent, annually, to security operations.

NRC Response. The final rule has been revised to minimize redundancy and add flexibility to its implementation. There should be no significant increase in cost to current licensees.

Question 2. Is there reason to expect the costs to future licensees to differ substantially from those of current licensees?

Summary of Responses. Four responses from nuclear utilities specifically addressed this issue. Three utilities cited both higher current and annual operating costs. One utility noted that, to the extent that current licensees have been required to commit to the practices recommended in the proposed rule in initial licensing, there is no anticipated difference in cost.

NRC Response. The final rule has been amended to be more consistent with physical protection implemented at sites with currently approved physical protection plans. Hence, there should be no significant increase in costs to future licensees.

Question 3. Are the cost estimates in Table III of the Draft Regulatory Analysis representative of current industry experience? Are there significant costs that have not been included in the table?

Summary of Responses. Three responses from nuclear utilities specifically addressed this issue. One respondent indicated that the cost estimates in Table III of the "Draft Regulatory Analysis" are sufficiently broad to address industry experience. However, the inclusion of a continual surveillance system is not covered and the respondent suggested that it should be a separate line item. Another respondent indicated that the cost estimates appear to be comprehensive except they do not include construction and maintenance of security office space, a records retention area, and alarm station(s).

NRC Response. The "Regulatory Analysis" has been revised to reflect public comment to include any omissions or changes made to the final rule.

Question 4. Are the costs justified by the benefits that would be afforded by the proposed amendments? Are there alternatives that would afford essentially the same benefits but be more cost-effective?

Summary of Responses. Three responses from nuclear utilities specifically addressed this issue. All three indicated that costs were not justified by benefits derived from the proposed

rule. One respondent stated that the individual measures of 10 CFR 73.51(d) have merit, but, when taken in aggregate, they are not necessary to protect public health and safety. This respondent further stated that redundancy in the proposed rule was not needed and the rulemaking should give affected licensees latitude in selecting and justifying the means of physical protection. Alternatives that were suggested involved the deletion of specific provisions of the proposed rule and also the restructuring of the rule so as to not group all ISFSIs under one set of physical protection criteria.

NRC Response. The Commission has revised the requirements of the proposed rule to eliminate unnecessary redundancies, add flexibility in implementation, and reduce manpower-intensive measures while maintaining an adequate level of physical protection.

Question 5. Are the proposed amendments to 10 CFR 73.51 appropriate for an MRS or geologic repository operated by the U.S. Department of Energy?

Summary of Response. The NEI was the only respondent to this issue. NEI noted that NRC should be mindful of the evolving nature of MRS installations and the geologic repository in the development of physical protection regulations for these sites.

NRC Response. NRC staff continues to work closely with DOE staff in the development of the certification process for MRS installations and the GROA.

These responses also are incorporated in the final rule that revises 10 CFR Parts 60, 72, 73, 74, and 75.

ATTACHMENT 3

STANDARD REVIEW PLAN
(NUREG — 1619)

NUREG 1619
JANUARY 1998

STANDARD REVIEW PLAN FOR PHYSICAL PROTECTION PLANS FOR THE INDEPENDENT STORAGE OF SPENT FUEL AND HIGH-LEVEL RADIOACTIVE WASTE

U.S. NUCLEAR REGULATORY COMMISSION

Office of Nuclear Material Safety and Safeguards

P. A. Dwyer

NUREG - 1619

STANDARD REVIEW PLAN FOR PHYSICAL PROTECTION PLANS FOR THE INDEPENDENT STORAGE OF SPENT FUEL AND HIGH-LEVEL RADIOACTIVE WASTE

Manuscript Completed: January 1998
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P. A. Dwyer

Division of Fuel Cycle Safety and Safeguards
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

ABSTRACT

This document is a standard review plan (SRP) for the evaluation of physical protection plans for the protection of spent fuel and high-level radioactive wastes stored at (1) independent spent fuel storage installations, (2) monitored retrievable storage installations, and (3) the geologic repository operations area. The purpose of an SRP is to assure that license applicants address every applicable Nuclear Regulatory Commission (NRC) requirement in their NRC-approved physical protection plan and to assure consistency and comprehensiveness of plan review by NRC. The information is presented in a new matrix or "modular" format to streamline the information and facilitate its use.

Comments, which would make future revisions of this NUREG more useful, are invited and should be directed to:

Ms. Priscilla A. Dwyer
Division of Fuel Cycle Safety and Safeguards
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

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1 INTRODUCTION

1.1 Background and Applicability

U.S. Nuclear Regulatory Commission (NRC) regulations for the physical protection of spent fuel and high-level radioactive waste stored at: (1) independent spent fuel storage installations (ISFSIs), (2) monitored-retrievable storage (MRS) installations or (3) the future geologic repository operations area are codified under 10 CFR 73.51. These regulations specify the physical protection measures a licensee must implement at affected sites and that a licensee must commit to in its NRC-approved physical protection plan.

1.2 Purpose of Document

This document is a standard review plan (SRP) for use by NRC license reviewers in evaluating physical protection plans prepared pursuant to 10 CFR 60.21(b)(3) (for MRS installations and the geologic repository) and 10 CFR 72.24 (for ISFSIs). The SRP contains the requirements that a licensee must meet and address in its physical protection plan and also contains additional information to be used as guidance in the implementation of the regulations. The SRP is used by NRC to assure comprehensive and consistent license reviews. This document is of use to license applicants or licensees seeking an amendment to their license because it provides a format acceptable to NRC for the required physical protection plan and concisely describes the requirements that the applicant or licensee must meet. This document supersedes any interim licensing guidance published before the issuance of 10 CFR 73.51.

1.3 Description of Document

This document contains nine modules that make up the major elements of physical protection plans for meeting the requirements of 10 CFR 73.51. These plans must meet every requirement presented in each module. Following each module is a "Guidance" section that contains supplemental information on the NRC's interpretation of the regulations, acceptable means for meeting the regulation, and any other pertinent information. Three appendices are included that contain recommendations on plan format, a user's glossary, and a sample license condition. (See Appendices A, B, and C.)

1.4 Modular Format

This SRP has been developed in a new modular format. This effort is part of a new initiative by NRC to simplify and gain efficiencies in the NRC licensing process by presenting information in a user-friendly format.

1.5 Protection of Plan

Physical protection plans for the storage of spent fuel and high-level radioactive waste should be protected as Safeguards Information in accordance with the provisions of 10 CFR 73.21.

2 BASIC STEPS IN THE PHYSICAL PROTECTION LICENSING PROCESS

There are a number of steps in the NRC evaluation of physical protection plans required to be submitted by NRC regulations. These steps are: (1) the submittal process, (2) the initial review process, (3) the final review process, and (4) the issuance of a license condition.

The submittal process can be prompted by the issuance of a new rule or amendments to an existing regulation or it can be a voluntary request on the part of the licensee. During this period, the applicant or licensee develops its protection strategy for meeting the new or amended requirement (or the voluntary request) and documents it in a letter to NRC licensing, for review and comment.

The initial review process is an iterative process in which discussions take place between NRC and the licensee or applicant to arrive at a proposal acceptable to NRC. A number of proposals may be submitted and evaluated during this period. The license reviewer, using such guidance as an SRP, informally assures that the proposal agreed to is adequate and sufficient in meeting NRC requirements.

The licensee or applicant then makes a formal and final submittal of its proposal. The license reviewer documents his or her formal review of the proposal in a Safeguards Evaluation Report (SER) which is stored and maintained on file for the life of the license.

The physical protection licensing process is completed by the issuance of a license condition attached to the main license. The license condition contains the commitments made by the licensee or applicant to meet the new or amended proposal and becomes a permanent part of the license, unless amended at some future time. Appendix C to this document contains a sample license condition that has been attached to a license in response to new or amended physical protection requirements or measures.

3 INCORPORATION BY REFERENCE

In addition to the information contained in this SRP, the following documents are incorporated by reference, as guidance to support the review process:

Regulatory Guide 5.12, *General Use of Locks in the Protection and Control of Facilities and Special Nuclear Materials*, November 1973.

Regulatory Guide 5.44, *Perimeter Intrusion Alarm Systems, rev.3*, October 1997.

NUREG 0794, *Protection of Unclassified Safeguards Information.*

4.1 MODULE I - INTRODUCTION AND EFFECTIVE DATE OF RULE	
4.1.1 Introduction	The licensee should provide a general description of the facility including name, location, corporation, type of facility, etc.
4.1.2 Effective date of rule	The rule is effective (insert 180 days after rule issuance date in the Federal Register.)

GUIDANCE:

No additional guidance is provided for this module.

4.2 MODULE II - GENERAL PERFORMANCE OBJECTIVES AND PROTECTION GOAL	
4.2.1 Objectives	Each licensee shall establish and maintain a physical protection system with the objectives of providing high assurance that activities involving special nuclear material do not constitute an unreasonable risk to public health and safety. 10 CFR 73.51 (b)(1).
4.2.2 Performance capabilities	To meet the general objective of paragraph 73.51(b)(1) each licensee shall meet the following performance capabilities: (1) Store the spent fuel and high-level radioactive waste only within a protected area; (2) Grant access to the protected area only to individuals who are authorized to enter the protected area; (3) Detect and assess unauthorized penetration of or activities within the protected area; (4) Provide timely communication to a designated response force whenever necessary; and (5) Manage the physical security organization in a manner that maintains its effectiveness. 10 CFR 73.51(b)(2).
4.2.3 Protection goal	The physical protection system must be designed to protect against loss of control of the facility which could be sufficient to cause radiation exposure exceeding the dose as described in 10 CFR 72.106. 10 CFR 73.51 (b)(3).

GUIDANCE:

4.2.3 The design basis threat for radiological sabotage of power reactors under 10 CFR 73.1 is not considered appropriate for the types of facilities subject to 10 CFR 73.51. Hence, a separate protection goal is defined for these facilities.

4.3 MODULE III - SECURITY ORGANIZATION	
4.3.1 Establishment of security organization	A security organization with written procedures must be established. The security organization must include sufficient personnel per shift to provide for monitoring of detection systems and the conduct of surveillance, assessment, access control, and communications to assure adequate response. 10 CFR 73.51 (d)(5).
4.3.2 Security audits	The physical protection program must be reviewed once every 24 months by individuals independent of both physical protection program management and personnel who have direct responsibility for implementation of the physical protection program. The physical protection program review must include an evaluation of the effectiveness of the physical protection system and a verification of the liaison established with the designated response force or local law enforcement agency. 10 CFR 73.51 (d)(12).
4.3.3 Qualifications for employment in security	Members of the security organization must be ...qualified... to perform assigned job duties in accordance with Appendix B to Part 73, sections I.A., (1)(a) and (b); B(1)(a); and the applicable portions of II. 10 CFR 73.51 (d)(5)
4.3.4 Security force training	Members of the security organization must be trained, equipped, qualified, and requalified to perform assigned job duties in accordance with Appendix B to Part 73, sections I.A., (1)(a) and (b); B(1)(a); and the applicable portions of II. 10 CFR 73.51 (d)(5).

4.3 MODULE III - SECURITY ORGANIZATION	
4.3.5 Records	The following documentation must be retained as a record for three years after the record is made or until termination of the license. Duplicate records to those required under 10 CFR 72.180 and 10 CFR 73.71 need not be retained. (1) A log of individuals granted access to the protected area, (2) screening records of members of the security organization, (3) a log of all patrols, (4) a record of each alarm received identifying the type of alarm, location, date and time when received, and disposition of the alarm, and (5) the physical protection program review reports. 10 CFR 73.51 (d) (13).

GUIDANCE:

4.3.3 Appendix B to Part 73, I.A.(1)(a) requires that the individual possess a high school diploma or pass an equivalent performance examination designed to measure basic job-related , mathematical, language and reasoning skills, ability and knowledge, required to perform security job duties.
Appendix B to Part 73, I.A. (1)(b) requires that the individual have no felony convictions involving the use of a weapon and no felony convictions that reflect on the individual's reliability.

Appendix B to Part 73, B (1)(a) requires that individuals whose security tasks and job duties are directly associated with the effective implementation of the licensee physical protection and contingency plans must have no physical weakness or abnormalities that would adversely affect their performance of assigned security job duties.

4.4 MODULE IV - PHYSICAL BARRIER SYSTEM	
4.4.1 General layout	Spent nuclear fuel and high-level radioactive waste must be stored only within a protected area so that access to this material requires passage through or penetration of two physical barriers, one barrier at the perimeter of the protected area and one barrier offering substantial penetration resistance. 10 CFR 73.51 (d)(1).
4.4.2 Physical barriers	The physical barrier at the perimeter of the protected area must be as defined in 10 CFR 73.2. Isolation zones, typically 20 feet wide each, on both sides of this barrier must be provided to facilitate assessment. The barrier offering substantial resistance to penetration may be provided by an approved storage cask or building walls such as those of a reactor or fuel storage building. 10 CFR 73.51 (d)(1).
4.4.3 Primary alarm station and security posts	The perimeter of the protected area must be subject to continual surveillance and be protected by an active intrusion alarm system that is capable of detecting penetration through the isolation zone and which is monitored in a continually staffed primary alarm station and in one additional continually staffed location. The primary alarm station must be located within the protected area; have bullet-resisting walls, doors, ceiling, and floor; and the interior of the station must not be visible from outside the protected area. A timely means for assessment of alarms must also be provided. Regarding alarm monitoring, the redundant location need only provide a summary indication that an alarm has been generated. 10 CFR 73.51(d)(3).

4.4 MODULE IV - PHYSICAL BARRIER SYSTEM	
4.4.4 Illumination	Illumination must be sufficient to permit adequate assessment of unauthorized penetration of or activities within the protected area. 10 CFR 73.51 (d)(2).

GUIDANCE:

4.4.2 A physical barrier means: 1) fences constructed of No. 11 American wire gauge or heavier wire fabric, topped by three strands or more of barbed wire or similar material on brackets angled inward or outward between 30 and 45 degrees from the vertical with an overall height of not less than eight feet, including the barbed topping; 2) building walls, ceiling, and floors constructed of stone, brick, cinder block, concrete, steel, or comparable material, (openings in which are secured by grates, doors, or covers of construction and fastening of sufficient strength such that the integrity of the wall is not lessened by any opening,) or walls of similar construction, not part of a building, provided with a barbed topping as described in paragraph (1) of this definition of a height of not less than eight feet; or 3) any other physical obstruction constructed in a manner and of material suitable for the purpose for which the obstruction is intended.

Vehicle barriers to protect against the malevolent use of a vehicle are not presently required at sites subject to 10 CFR 73.51.

4.4.3 The alternate station may be located at the local law enforcement agency or a commercial alarm monitoring station with redundant capability for contacting local law enforcement.

4.4.4 Illumination should be maintained during all periods of darkness (not just during periods of assessment.) The level of illumination should be sufficient for the assessment means used. No required illumination level is specified in 10 CFR 73.51. It is also recognized that due to the physical nature of an ISFSI, it may be difficult to maintain a consistent level of illumination throughout the protected area due to required structures, e.g., storage casks.

4.5 MODULE V - ACCESS CONTROL SUBSYSTEMS AND PROCEDURES	
4.5.1 Identification system	A personnel identification system ... must be established and maintained to limit access to authorized individuals. 10 CFR 73.51 (d)(7).
4.5.2 Access to protected areas	All individuals, vehicles, and hand-carried packages entering the protected area must be checked for proper authorization ... before entry. 10 CFR 73.51 (d)(9).
4.5.3 Access controls at the protected area	All individuals, vehicles and hand-carried packages entering the protected area must be ... visually searched for explosives before entry. 10 CFR 73.51(d)(9).
4.5.4 Escorts and escorted individuals	N/A (See Guidance below.)
4.5.5 Key and lock control	A ... controlled lock system must be established and maintained to limit access to authorized individuals. 10 CFR 73.51 (d)(7).
4.5.6 Records	The following documentation must be retained as a record for 3 years after the record is made or until termination of the license. Duplicate records to those required under 10 CFR 72.180 and 10 CFR 73.71 need not be retained under the requirements of this section: (i) a log of individuals granted access to the protected area; (ii) screening records of members of the security organization; (iii) a log of all patrols; (iv) a record of each alarm received, identifying the type of alarm, location, date and time when received and disposition of the alarm; and (v) the physical protection program review reports. 10 CFR 73.51(d)(13).

GUIDANCE:

4.5.1 The personnel identification system should provide unique identification of individuals granted access to the protected area through such means as a picture identification system using a driver's license photograph, a name badge system using a difficult to counterfeit badge medium, or facial recognition. Justification for use of facial recognition should be provided, such as, long term employment and small site population.

4.5.4 If an individual can be conclusively identified, is authorized access, and has been searched for explosives without positive result, then no escort is required. If the individual cannot meet any of these three criteria, access to the protected area should be denied.

4.5.5 Regulatory Guide 5.12, *General Use of Locks in the Protection and Control of Facilities and Special Nuclear Materials*, November 1973, should be used as guidance in the development of a controlled lock system.

4.5.6 The applicant or licensee need not describe redundant recordkeeping requirements under each module of the plan. The records pertinent to the particular module need only be described.

4.6 MODULE VI - DETECTION, SURVEILLANCE, AND ALARM SUBSYSTEMS	
4.6.1 Isolation zone penetration	Spent nuclear fuel and high-level radioactive waste must be stored only within a protected area so that access to this material requires passage through or penetration of two physical barriers, one at the perimeter of the protected area and one barrier offering substantial penetration resistance. The physical barrier at the perimeter of the protected area must be as defined in 10 CFR 73.2. Isolation zones, typically 20 feet wide each, on both sides of this barrier must be provided to facilitate assessment.... 10 CFR 73.51(d)(1).
4.6.2 Alarm annunciation at security posts	The perimeter of the protected area must be subject to continual surveillance and be protected by an active intrusion alarm system that is capable of detecting penetration through the isolation zone and which is monitored in a continually staffed primary alarm station and one additional continually staffed location... A timely means of assessment must also be provided. With respect to alarm monitoring, the redundant location need only provide a summary indication that alarm has been generated. 10 CFR 73.51(d)(3).
4.6.3 Power sources	All detection systems, surveillance/assessment systems, and supporting subsystems including illumination systems must be...maintained in operable condition. 10 CFR 73.51 (d)(11).
4.6.4 Component supervision	All detection systems, surveillance/assessment systems, and supporting subsystems must be tamper-indicating with line supervision.... 10 CFR 73.51 (d)(11).

4.6 MODULE VI - DETECTION, SURVEILLANCE, AND ALARM SUBSYSTEMS	
4.6.5 Protected area monitoring and assessment	The perimeter of the protected area must be subject to continual surveillance and be protected by an active intrusion alarm system which is capable of detecting penetration through the isolation zone and that is monitored in a continually staffed primary alarm station and in one additional continually staffed location. 10 CFR 73.51(d)(3). isolation zones, typically 20 feet wide each on both sides of this barrier (the PA barrier) must be provided to facilitate assessment. 10 CFR 73.51(d)(1). The protected area must be monitored by daily random patrols. 10 CFR 73.51(d)(4). A timely means of assessment of alarms must also be provided. 10 CFR 73.51 (d)(3).

GUIDANCE:

4.6.2 The licensee or applicant should follow the guidelines of R.G. 5.44, *Perimeter Intrusion Alarm Systems, rev.3*, regarding alarm annunciation.

4.6.5 Factors that should be considered in determining frequency of random patrols include: remoteness of facility, nature of activities located adjacent to the site, and size of the storage facility. For example, a minimum of two patrols per day should be conducted unless in a remote area where more patrols may be necessary.

4.7 MODULE VII - COMMUNICATIONS SUBSYSTEMS	
4.7.1 Security force communications	A security organization with written procedures must be established. The security organization must include sufficient personnel per shift to provide for...the conduct of...communications to assure adequate response. 10 CFR 73.51(d)(5).
4.7.2 Alarm station communications	Redundant communications capability must be provided between onsite security force members and the designated response force or local law enforcement agency. 10 CFR 73.51(d)(8).
4.7.3 Power sources	All detection systems, surveillance/assessment systems, and supporting subsystems including illumination systems must be...maintained in operable condition. 10 CFR 73.51 (d)(11) .

GUIDANCE:

No additional guidance is provided under this module.

4.8 MODULE VIII - EQUIPMENT OPERABILITY AND COMPENSATORY MEASURES	
4.8.1 Equipment operability	All detection systems, surveillance/assessment systems, and supporting subsystems including illumination systems... must be maintained in operable condition. 10 CFR 73.51(d)(11).
4.8.2 Compensatory measures	Timely compensatory measures must be taken after discovery of inoperability to assure that the effectiveness of the system is not reduced. 10 CFR 73.51(d)(11).
4.8.3 Testing and maintenance	All detection systems, surveillance/assessment systems, and supporting subsystems including illumination systems... must be maintained in operable condition. 10 CFR 73.51(d)(11).

GUIDANCE:

4.8.3 The test and maintenance program described in Regulatory Guide 5.44, *Perimeter Intrusion Alarm Systems, rev.3*, is an acceptable program for maintaining equipment in operable condition.

4.9 MODULE IX - CONTINGENCY RESPONSE PLAN AND PROCEDURES	
4.9.1 Contingency plan documentation	Written response procedures must be established and maintained for addressing unauthorized penetration of or activities within the protected area including Category 5, "Procedures," of Appendix C to Part 73. 10 CFR 73.51(d)(10).
4.9.2 Response force liaison	Documented liaison with a designated response force or local law enforcement agency must be established to permit timely response to unauthorized penetrations or activities. 10 CFR 73.51)(d)(6).
4.9.3 Response procedures	Written response procedures must be established and maintained for addressing unauthorized penetration of or activities within the protected area including Category 5, Procedures, of Appendix C to Part 73. 10 CFR 73.51(d)(10) .
4.9.4 Records	The licensee shall retain a copy of response procedures as a record for 3 years or until termination of the license for which the procedures were developed. 10 CFR 73.51(d)(10).

GUIDANCE:

4.9.2 The designated response force could be a privately contracted security force that meets the requirements of Appendix B to Part 73. If the designated response force cannot respond in a timely manner, additional protective measures may be required, to include use of armed guards.

4.9.3 It is expected that the contingency plan for the storage of spent fuel and high-level radioactive waste will not be as extensive as that described for power reactors under Appendix C to Part 73. The contingency plan for the storage of spent fuel and high level radioactive waste should, as a minimum, include Category 5 of Appendix C to Part 73, Procedures.

APPENDIX A - PHYSICAL PROTECTION PLAN FORMAT

If this format is used, the applicant should follow the numbering system of this NUREG. Under certain 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 this conclusion.

The applicant may wish to submit information in support of an 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 in an appendix to the plan.

Upon completion of the plan, the applicant should use the table of contents of this document as a checklist to ensure that each subject has been addressed.

A.1. 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.

Whenever possible, duplication of information should be avoided. The information included in other sections of the application 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 assure that the 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.

A.2. Physical Specifications of Submittal

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

A.2.1 Paper Size

Text: paper should be 8.5 x 11 inches in dimension.

Drawings and graphics: 8.5 x 11 inches, preferred; however, a larger size is acceptable provided the finished copy, when folded, does not exceed 8.5 x 11 inches.

A.2.2 Paper Stock and Ink

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

A.2.3 Paper Margins

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

A.2.4 Printing

Composition: text pages should be single spaced. Type face, and style should 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.

A.2.5 Binding

Pages should be punched for loose leaf ring binding.

A.2.6 Page Numbering

Pages should be numbered consecutively throughout the main part of the document. Any appendices may be numbered separately, if desired. Each page of the physical protection plan should contain a page number; a revision number, if applicable; and a date.

A.3. Procedures for Updating or Revising Pages

The updating or revising of data should be on a replacement page basis. The changes 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 changes or added. All pages submitted to update, revise, or add pages to the plan are to show the date of the change. The transmittal letter should include the 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.

A.4 Number of Copies

The applicant should submit the appropriate number of copies of each requested submittal in accordance with 10 CFR 72.16.

A.5 Public Disclosure

NRC has determined that public disclosure of the details of physical protection programs is not in the public interest and such details should be protected as Safeguards Information pursuant to 10 CFR 73.21

A.6 Compatibility

The applicant should ensure that the physical protection plan is compatible with the other sections of the application.

A.7 Schedule for Submittal

The applicant should contact NRC to determine a schedule for physical protection plan submittal.

APPENDIX B - GLOSSARY OF TERMS

These terms are excerpted from Title 10 of the Code of Federal Regulations, 10 CFR Parts 72 and 73.

Independent spent fuel storage installation or ISFSI - a complex designed and constructed for the interim storage of spent nuclear fuel and other radioactive materials associated with spent fuel storage. An ISFSI which is located on the site of another facility may share common utilities and services with such a facility and be physically connected with such other facility and still be considered independent; provided that such sharing of utilities and services or physical connections does not: (1) increase the probability or consequences of an accident or malfunction of components, structures or systems that are important to safety, or (2) reduce the margin of safety as defined in the basis for any technical specification of either facility.

Isolation zone - Any area adjacent to a physical barrier, clear of all objects which could conceal or shield an individual.

Monitored retrievable storage installation or MRS - A complex designed, constructed and operated by the Department of Energy for the receipt, transfer, handling, packaging, possessing, safeguarding, and storage of spent nuclear fuel aged for at least one year and solidified high-level radioactive waste resulting from civilian nuclear activities, pending shipment to a high-level waste repository or other disposal.

Physical barrier - (1) Fences constructed of No.11 American Wire Gauge, or heavier wire fabric, topped by three strands or more of barbed wire or similar material on brackets angled inward or outward between 30 degrees and 45 degrees from the vertical, with an overall height of not less than eight feet, including the barbed topping, (2) building walls, ceilings, and floors constructed of stone, brick, cinder block, concrete, steel, or comparable materials (openings in which are secured by grates, doors or covers of construction and fastening of sufficient strength such that the integrity of the wall is not lessened by any opening), or walls of similar construction, not part of a building, provided with a barbed topping described in paragraph (1) of this definition of a height of not less than eight feet; or (3) any other physical obstruction constructed in a manner and of materials suitable for the purpose for which the obstruction is intended.

Spent nuclear fuel or spent fuel - Fuel that has been withdrawn from a nuclear reactor following irradiation, has undergone at least one year's decay since being used as a source of energy in a power reactor and has not been chemically separated into its constituent elements by reprocessing. Spent fuel includes the special nuclear material, byproduct material, source material, and other radioactive materials associated with fuel assemblies.

Strategic special nuclear material - Uranium-235 (contained in uranium enriched to 20 percent or more in the U-235 isotope), uranium-233, or plutonium.

Watchman - 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.

APPENDIX C - SAMPLE LICENSE CONDITION

"The licensee shall follow the physical protection plan entitled: "XXXX Independent Spent Fuel Storage Installation Physical Protection Plan," dated (insert date) and as it may be further amended under the provisions of 10 CFR 72.33(e) and 72.84(d)."

(The requirements of 10 CFR Part 73, Appendix B, for guard training and qualification, are incorporated in Appendix C of the approved physical protection plan. The requirements of 10 CFR Part 73, Appendix C, for contingency planning, are incorporated into the physical protection plan in Chapter 1.9.)

ATTACHMENT 4

FINAL REGULATORY ANALYSIS

FINAL REGULATORY ANALYSIS
PHYSICAL PROTECTION FOR SPENT NUCLEAR FUEL
AND HIGH-LEVEL RADIOACTIVE WASTE STORAGE FACILITIES

1. STATEMENT OF THE PROBLEM AND REGULATORY APPROACH

1.1 Problem

On August 15, 1995 (60 FR 42079), the Nuclear Regulatory Commission (NRC) published, for public comment, a proposed rule to clarify physical protection requirements for spent nuclear fuel and high-level radioactive waste stored at independent spent fuel storage installations (ISFSIs); power reactors that have permanently ceased operations; monitored retrievable storage (MRS) installations; and the geologic repository operations area (GROA). The proposed rule would also allow general licensees the option of implementing the proposed physical protection requirements for spent nuclear fuel stored in approved casks at operating power reactor sites. Public comments were received on the proposed rule. The Commission revised this regulatory analysis and the proposed physical protection requirements in response to these public comments. Revisions have also been made to the applicability section of the final rule to eliminate licensees holding 10 CFR Part 50 licenses. This is to permit full evaluation of a current on-going issue within the NRC regarding the cooling time of spent fuel as it relates to the level of physical protection required.

The objective of the final rule is to reduce the regulatory uncertainty regarding the physical protection requirements for the storage of spent nuclear fuel and high-level radioactive waste under a 10 CFR Part 72 license without reducing the level of protection for public health and safety.

1.2 Background

The Commission's regulations addressing the storage of spent nuclear fuel and high-level radioactive waste -- 10 CFR Part 72, "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste" -- refer the applicant or licensee to "...applicable requirements of 10 CFR Part 73..." for requirements for physical protection. However, Part 73 does not identify any physical protection requirements that are specific to the storage of spent nuclear fuel and high-level radioactive waste. In practice, NRC

has imposed specific requirements on affected facilities through license conditions using selected portions of 10 CFR 73.50 and interim licensing criteria as guidance.

The Commission's regulations, in 10 CFR Part 60, for Department of Energy (DOE) disposal of spent nuclear fuel and high-level radioactive waste at a GROA take a different approach. Instead of specifying applicable requirements to protect the common defense and security, they call for DOE to certify that it will provide "...such safeguards as it requires at comparable surface facilities..." of DOE. They also require DOE to describe a physical protection plan for protection against radiological sabotage, but the contents of that plan are not specified. As a result, DOE does not need to identify the requirements it will apply before filing its application for a geologic repository. Therefore, the public would not have an opportunity to review or comment on the appropriateness of those requirements until an application is filed. Finally, DOE's strategy for managing high-level radioactive waste has shifted from one of developing an MRS to one that uses multipurpose canisters located at nuclear power reactor sites. As such, under its current scheme, there would not be a comparable DOE surface facility.

The only physical protection requirements in NRC regulations that are specific to the storage of spent nuclear fuel are those that apply to spent nuclear fuel stored in certified casks under a general license at operating nuclear power reactors. These requirements are found in 10 CFR 72.212(b)(5).

After considering public comments, the Commission is issuing final regulations to codify existing practice for the physical protection of stored spent nuclear fuel and high-level radioactive waste licensed under 10 CFR Part 72. As intended in the proposed rule, the final amendments would provide a set of physical protection requirements directed at the storage of spent nuclear fuel and high-level radioactive waste, whether at an ISFSI, an MRS, or a geologic repository. In addition, these final amendments are consistent with existing requirements for spent nuclear fuel storage under a general license at operating power reactors [10 CFR 72.212(b)(5)]. Because the final amendments mostly codify the existing regulatory practice there would not be any additional burden placed on current licensees. Nevertheless some

differences may exist in a few cases, as expressed in public comments. The final rule has been revised to give flexibility to licensees and, where appropriate, reduce redundancies and burden.

These amendments would also make the requirements of 10 CFR Part 75 applicable to the GROA in the event it is selected for inspection by the International Atomic Energy Agency (IAEA) under the agreement between the United States and the IAEA for application of IAEA safeguards in the U.S. This change is needed because the "Terms of Reference", dated August 1, 1994, for the Subgroup on IAEA Safeguards in the U.S., part of the Subcommittee on International Safeguards and Monitoring of the IAEA Steering Committee, states that NRC shall be the U.S. agency responsible for maintaining necessary regulations for implementing the US-IAEA Safeguards Agreement at NRC-licensed or -certified facilities, including the promulgation of regulations, incorporation of appropriate amendments in NRC licenses, and the issuance of such orders as may be necessary to assure compliance. These "Terms of Reference" regarding the agreement between the U.S. and the IAEA are available for inspection in NRC's public document room.

The final rule does not require specific protection against the malevolent use of a vehicle. As stated in the proposed rule, the staff has been studying this issue and attempting to quantify the consequences of a vehicle bomb detonated in the vicinity of an ISFSI. Based on the results of expert study and a peer review of its findings, NRC has determined that at this time there is no compelling justification for requiring a vehicle barrier as perimeter protection for spent fuel and high-level radioactive waste stored under a 10 CFR Part 72 license.

1.3 Regulatory Approach

The final requirements would amend 10 CFR Parts 60, 72, 73, 74, and 75. For Part 60, NRC has decided that the regulatory approach for protecting a GROA be the same as that which applies to spent nuclear fuel storage facilities licensed under Part 72. The basic reason for this decision is that the GROA operations, at least insofar as they are expected to be conducted in surface facilities, appear to present the same kinds of potential threats that are characteristic of the storage of spent nuclear [illegible]. The protection that would thus be required is deemed to be sufficient as well to protect against acts, affecting the underground facility, that might be inimical to the common defense and security. This regulatory approach is predicated

on maintaining the physical integrity of the spent nuclear fuel rods. If their physical integrity is not maintained, additional license conditions might be found to be necessary and would then be incorporated in the license.

This final rule represents a departure from the Commission's prior position, as explained in the "Statement of Considerations" accompanying its promulgation of 10 CFR Part 60 (46 FR 13971, 13975, February 25, 1981). The prior view was that "DOE, as a Federal agency operating under the Atomic Energy Act, has its own obligation to promote the common defense and security. Indeed, DOE is responsible under the Atomic Energy Act for protection of materials and facilities far more sensitive from a safeguards standpoint than nuclear waste materials in a geologic repository. Therefore, 10 CFR 60.21(b)(3) provided that a DOE certification that its repository operations area safeguards are equal to those at comparable DOE surface facilities shall constitute a rebuttable presumption on the question of inimicality to the common defense and security."

Implementation of Part 60 has proved to be difficult for two reasons. The first has been the identification of DOE surface facilities that are "comparable," so that the protective measures are neither too burdensome nor too lax. The second reason concerns the indefiniteness of the "rebuttable presumption" language. Neither DOE nor NRC nor any other potential party can be certain about the level of detail that might be necessary to support the certification or to rebut the presumption of noninimicality. It appears likely to the Commission that the specification of reasonable requirements, as in this final rule, will enable DOE to discharge its common defense and security obligations more efficiently than would be the case under the existing language. And there would be the added benefit of ensuring that similar operations (i.e., at a GROA as well as at spent nuclear fuel storage facilities) are addressed in a consistent manner.

The final amendments would replace existing 10 CFR 60.21(b)(3) with a requirement for DOE to submit a detailed plan to provide physical protection for the storage of high-level radioactive waste at a GROA in accordance with a new 10 CFR 73.51. Also, the final amendment would replace existing 10 CFR 60.21(b)(4) with a requirement for DOE to comply with a new § 60.78, which requires DOE to provide a description of a program to meet the

requirements of existing §§ 72.72, 72.74, 72.76, and 72.78. The rationale for these changes is, as discussed above, to ensure that the physical protection for similar facilities are addressed in a consistent manner. In addition, because these specific requirements are being provided, the general requirement for DOE to provide "...such safeguards as it requires at comparable surface facilities..." would also be removed from §§ 60.31, 60.41, and 72.24(o), because it would not be needed.

An additional revision to Part 60 relates to the nuclear material control and accounting program that is referred to in § 60.21(c)(10). To the extent that this program relates to safeguards issues, it is more properly addressed as "general information" under § 60.21(b), rather than as part of the Safety Analysis Report under § 60.21(c). The final rule will accomplish this. However, existing § 60.21(c)(10) has a broader purpose that does implicate safety issues. There is a need for DOE to describe the materials inventory and record-keeping program that is designed to assure protection of public health and safety during operations of the GROA and after permanent closure. Such information is important, for example, for purposes of performance confirmation, potential retrieval, and archival documentation. Section 60.21(c) would accordingly be revised to reflect this focus.

The final amendment to § 72.180 would provide requirements for the storage of spent nuclear fuel and high-level radioactive waste under a specific license by referring applicants to the same new section, § 73.51.

In licensing the storage of spent nuclear fuel and high-level radioactive waste at an ISFSI, the NRC staff has had to sort through the many requirements of Part 73 to choose appropriate physical protection requirements, and impose those requirements through license conditions. As a result of this experience, however, a set of principles has evolved that reflects both the nature of potential threats and the hazardous radioactive characteristics of the materials. Accordingly, the final amendments in §73.51 would codify physical protection requirements currently imposed on licensees that store spent nuclear fuel under a 10 CFR Part 72 license and would provide a consistent set of requirements for future licensing. Specifically, this new section would have the objective of ensuring that the following basic physical protection performance capabilities are met:

(1) Store spent nuclear fuel and high-level radioactive waste only within a protected area;

(2) Grant access to the protected area only to individuals who are authorized to enter the protected area;

(3) Detect and assess unauthorized penetrations of, or activities within, the protected area;

(4) Provide timely communication to a designated response force, whenever necessary; and

(5) Manage the physical protection organization in a manner that maintains its effectiveness.

These amendments would not apply to spent nuclear fuel storage pools at nuclear power plants licensed under 10 CFR Part 50. Because these final requirements would for the most part codify the existing regulatory practice, there would not be any additional burden placed on current licensees. Further, the industry would benefit from a reduction of current regulatory uncertainties. The public would benefit from a greater level of assurance that appropriate physical protection requirements are being imposed on spent nuclear fuel and high-level radioactive waste storage licensees through public review and comment on the proposed rule. The DOE would benefit from the amendments by having a clear statement of the protection measures the Commission plans to require at the GROA. Also, NRC would benefit as a result of a more efficient licensing process.

In addition, the current reporting requirements in § 73.71 would be amended to specifically include facilities that are subject to this rulemaking. However, since the amended reporting requirements are equivalent to current practice, no additional burden will be placed on current licensees as a result of these amended reporting requirements.

2.0 ALTERNATIVES

Two alternatives were considered:

(1) Do nothing and use existing requirements, namely §§60.21, 60.31, 60.41, 70.24, 72.180, 73.50, or 74.51, as appropriate, to license each facility on a case-by-case basis.

(2) Rulemaking to codify the existing regulatory practice.

Taking no action and using existing requirements to license these facilities is not an efficient use of NRC resources, because of the many licensing exceptions needed to ensure adequate protection against the postulated protection goal, but not theft of SSNM, and the nebulous nature of ensuring, via licensing for an MRS or the GROA, that DOE provides "comparable safeguards". Taking no action and using existing requirements does not ensure that consistent requirements are applied to 10 CFR Part 72 spent nuclear fuel storage. Moreover, taking no action does not provide the applicant with sufficient definitive guidance on what is expected in the way of physical protection requirements, would continue the current state of uncertainty, and would not inform the public of the requirements the NRC is using.

On the other hand, a rulemaking to codify the existing regulatory practice is the solution to the aforementioned problems. It also would provide the benefits of public notice and comment on the proposed requirements. The NRC believes that the industry would benefit from an elimination of the current uncertainties regarding the regulatory requirements. The public would benefit from being assured that the physical protection required for these facilities are in place. Also, the NRC would benefit from an increased efficiency in the licensing of these facilities.

Except for the possible cost of hardening the primary alarm station (estimated to be $30,000), these final amendments would not impose any additional costs on the nuclear industry beyond what are currently required for protection of stored spent nuclear fuel, because no new major requirements are being added. Moreover, the staff revised the proposed rule, in response to the public comments, to eliminate any redundant requirements, and to add flexibility to rule implementation, both of which will reduce licensees' financial burden from this rule. [More discussion on this is given in Section 5.0.]

Therefore, the NRC costs of implementing these final amendments would be less than the current licensing process because the extensive use of exceptions would no longer be necessary. The costs to future ISFSI, MRS, or GROA licensees are expected to be approximately the same as those for current ISFSI licensees because the requirements for

physical protection contained in the final amendments are designed to be the same as those for current ISFSIs.

3.0 IMPACTS OF IMPLEMENTING THE RULE

3.1 Impacts on Current Licensees

The impact of implementing the final rule for current 10 CFR Part 72 licensees will be small. A comparison of the current license conditions with the requirements of the final rule revealed that in the majority of cases the current license conditions are equivalent to the requirements of the final rule.

A survey was conducted of current ISFSIs licensed under 10 CFR Part 72. In addition, telephone interviews of licensees were supplemented by a review of the license conditions. Licensees answered 30 questions describing the proposed requirements. The list of questions is provided in Table 1.

There is one facility where the physical protection system appears not to fully meet the intent of the final rule under one provision. The provision requires isolation zones on both sides of the perimeter barrier. At the site in question, only one isolation zone is in place on the exterior side of the barrier. In preparing for implementing the final rule, NRC staff have identified alternative measures that are currently in place at the site which would provide an equivalent level of physical protection.

3.2 Impacts on Future Licensees

Cost impacts for future licensees have been prepared for the final rule and are used to develop implementation and annual operating expenses for a future licensee.

A base set of characteristics for a typical ISFSI was developed to provide an estimate for implementing the proposed requirements, and is repeated here for completeness. It should be noted that, after staff's analysis of public comments, some of these requirements were revised in the final rule (revised items are identified below). For a discussion on the impact of these revisions, see Section 5.0. The basic characteristics are:

- A copy of the effective physical protection plan retained until 3 years after the license expires. Copies of superseded material retained for 3 years after each change.
- A perimeter barrier that meets the definition of a barrier in § 73.2.
- The cost of dismantling or securing equipment used to handle the spent nuclear fuel as an alternate acceptable measure to the barrier offering significant resistance to penetration.
- Illumination of the protected area sufficient for means of assessment (REVISED).
- An intrusion detection system at the perimeter.
- An isolation zone, typically 6.1-meters (20-ft) wide, on both sides of the barrier at the perimeter.
- A security organization sufficiently staffed to perform required duties. (REVISED).

4.0 "VALUE-IMPACT ANALYSIS" OF THE FINAL RULE

This "Value-Impact Analysis" was prepared for the proposed rule, and is repeated here for completeness. It provides reference to the proposed rule and the changes made to it in response to public comments. This "Value-Impact Analysis" is based on and will review the costs incurred by ISFSI licensees under current license conditions. Because the final requirements are essentially the same as the current license conditions, there would be no additional costs for existing licensees. Furthermore, if NRC continues its current regulatory policies, the costs for applicants would be approximately the same regardless of whether the final requirements are promulgated. In general, several costs are incurred by the entities operating an ISFSI. This analysis represents the costs associated with the construction and operation of an isolated ISFSI, not associated with an operating power reactor. Included in the estimates are the costs of materials, labor, equipment, overhead, and profit. These cost estimates evaluate the following categories:

- Perimeter fencing,
- Illumination of the protected area,
- Constructing a 6.1-meters (20-ft) isolation zone on either side of the fenced perimeter boundary,
- Installation of a Perimeter Intrusion Detection (PID) system, and
- Security force and other general security requirements.

A comprehensive evaluation of components and constituents within these categories was performed with the results all being adjusted to 1994 dollars. Cost estimates were developed from "Means Facilities Cost Data, 1988", adjusted to 1994 dollars. Where Means' cost estimates were unavailable, manufacturers data or experienced judgment was used to arrive at current estimates. Additionally, the cost estimates were broken down into one-time costs and annual operating costs. Key assumptions within each of the above categories of evaluation are discussed in the following sections.

The total costs for construction and operation of the facility, in 1994 dollars, are presented for the proposed and final rules in Table 2 and Table 3, respectively. The costs are broken out into annual operating costs and by categories consistent with those above.

4.1 Perimeter Fencing

The perimeter dimensions chosen for this analysis correspond to dimensions of 243.8 meters (800 ft) by 253 meters (830 ft). The fence is assumed to be 2.4-meters (8-ft) high, topped by 3 strands of barbed wire on angled brackets. The fence is 11-gauge industrial chain link with a motorized entry gate that is 9.1-meters (30-ft) wide.

4.2 Illumination of Protected Area

As required by the final rule, the illuminated area was considered for the entire PA. Calculations were performed using a point, hemispherical (i.e., spreading) light source located at the top of a 12.2-meter (40-ft) light pole. These results were compared to Means' illumination data. Incandescent lighting was used for the estimate and it was assumed that the light poles were mounted on concrete bases. It was also assumed that the lighting system was only on during periods of darkness

4.3 Isolation Zone

The isolation zone was assumed to extend for 6.1 meters (20 ft) on either side of the perimeter fencing. Ground preparation work was assumed to consist of using a road grader to prepare the 12,114.6 square-meter (130,400-sq-ft) isolation zone area. As such, selection of a candidate site was assumed to include a level grade as one of the selection criteria. Major

grade work beyond this was not considered. Also, use of a 5.1-centimeter (2 in) depth pea gravel ground cover over 6 mil (0.01 in.) plastic was incorporated into the facility design.

4.4 Perimeter Intrusion Detection System

The cost of a PID system was estimated for this effort. Costs were based on manufacturers' quotes and using three zones per perimeter side for a total of 12 zones. It was assumed that each PID sensor location has an independent data channel rather than using a polling-type system. The PID station's power supply cable and data conduits were assumed to be buried in an underground trench.

4.5 Watchmen and Other Security

The cost of three two-man, 8-hour watchmen shifts with two additional supervisor or relief watchmen were estimated for this analysis. A number of other costs were considered, including: implementation of a badging system; initial security training; redundant communication systems; security facility access software; two independent 486 computer systems and backup software and hardware; alarm and operating system hardware, software, and response procedures. In addition, other annual equipment maintenance costs were included to cover the costs for facility upkeep.

5.0 SAVINGS/COSTS RESULTING FROM PROPOSED RULE REVISION

The staff revised the proposed rule in response to the public comments. The major objectives of this revision are to eliminate any redundant requirements, add flexibility in the rule implementation, and reduce cost to licensees without reducing the level of physical protection for ISFSIs. The following is a list of the estimated savings/costs which will be realized from the revisions for an ISFSI that is sited at a new location, where little or no security currently exists -- the total costs for construction and operation of this type of facility under the proposed and final rules are presented in Tables 2 and 3, respectively.

REVISED REQUIREMENT	SAVING OR COST	CONSTRUCTION OR ANNUAL EXPENSE	ESTIMATED DOLLARS
§ 73.51(d)(3)-Bullet-Resist. Primary Alarm Station	Cost	Construction	30,000
§ 73.51(d)(2)-Illumination (less than 2.1 lux (0.2 footcandles))	Saving	Construction	150,000
§ 73.51(d)(3)-Redundant Alarm Station (summary indication only)	Saving	Equipment	10,000
§ 73.51(d)(5)-Guard Force (less than 2 watchmen/shift)	Saving	Annual	0[1]
§ 73.51(d)(9)-Explosive search (visual search only)	Saving	Equipment	20,000
§ 73.51(d)(13)-Screening Records (Security org. only)	Saving	Annual	2,000

It can be seen from the above list that the only cost item, to licensees, that resulted from revising the proposed rule, is the bullet-resisting construction cost of the primary alarm station, estimated at $ 30,000. The other five revised requirements result in savings that total $ 2,000 annually and $ 180,000 in facility construction cost.

[1] The proposed rule required a minimum of two watchmen per shift. The final rule does not specify the number of watchmen, but requires sufficient personnel for monitoring of detection systems and the conduct of surveillance, assessment, access control, and communications to assure adequate response. Perhaps some cost savings could be realized, but for the purpose of this estimation, no savings are assumed

6.0 DECISION RATIONALE

The Commission has previously decided for earlier rulemakings what level of physical protection requirements are adequate for spent nuclear fuel storage while considering the costs and other impacts to the industry. The final rulemaking continues the level of protection previously selected by the Commission. The associated costs have been reviewed in this regulatory analysis. Also, current licensees should have uniform requirements and future licensees should have equivalent requirements. This regulatory goal may be accomplished by either continuing the status quo or by promulgating the final rulemaking. The first alternative, using existing requirements to license the facilities on a case-by-case basis, is not an efficient use of NRC resources, does not provide the applicant with definitive regulatory requirements for what is expected for physical protection, and continues the current state of regulatory uncertainty.

The final rulemaking would make clear the expected level of protection that is adequate for the actual threat to the public health and safety, and is the preferred option. The final rulemaking would provide consistent, explicit requirements for physical protection for all storage of spent nuclear fuel under a 10 CFR Part 72 license.

The industry would benefit from a reduction of the current regulatory uncertainties attendant to case-by-case imposition of regulatory requirements, the public would benefit from a greater level of assurance that appropriate protection requirements are being imposed upon spent nuclear fuel storage licensees, and NRC would benefit as a result of a more efficient licensing process. Also, the industry would not incur any additional costs.

6.0 IMPLEMENTATION SCHEDULE – NRC RESOURCES AND TIMETABLE FOR THE RULEMAKING

No need for additional resources is anticipated after the rule is promulgated. The final rulemaking is expected to be published in 1998.

Table 1 - Questions Provided to Licensees

1.	*Do you have a plan which demonstrates how you will comply with the applicable requirements of Part 73?*	16.	*What is the redundant communications capability?*
2.	*Does it list test, inspections, audits, and other means used to demonstrate compliance with the requirements?*	17.	*What is the training and qualification program for ISFSIs guards, watchmen, etc.?*
3.	*What are the two physical barriers for this ISFSI?*	18.	*Is this separate from other training programs you may have?*
4.	*Does the barrier at the perimeter at the perimeter meet the definition in § 73.2?*	19.	*Is there a training and qualification plan?*
5.	*Is there a 20 ft wide isolation zone on both sides of the physical barrier at the perimeter?*	20.	*Do you have a program to screen individuals for unescorted access?*
6.	*Is the protected area illuminated to 0.2 ft-candles?*	21.	*What do you do to screen an individual for unescorted access?*
7.	*Is this all the time or only during periods of assessment?*	22.	*Is this separate from other screening programs you may have?*
8.	*What method of intrusion detection at the perimeter do you use?*	23.	*What access control measures do you use? What types of hardware do you use? Do you use badges?*
9.	*How many security individuals are on a shift? Three shifts per day?*	24.	*What type of searches are performed prior to access to the protected area?*
10.	*How often are patrols?*	25.	*Do you have independent sources of power for detection, surveillance, and alarm systems?*
11.	*What method is used to assess alarms?*	26.	*Do you have tamper protection on the surveillance equipment lines? Detection equipment lines?*
12.	*Where do the alarms sound? Is this manned continuously?*	27.	*What type of cask do you use? How many casks can the facility hold?*
13.	*Is there a redundant alarm location?*	28.	*Do you have written procedures for dealing with an unauthorized penetration or activities within the protected area?*
14.	*Who is the designated response force?*	29.	*Do you have a test and maintenance program for equipment?*
15.	*What is the communication link with designated response force?*	30.	*Do you maintain records of:* - *Individuals granted access to the protected area?* - *Screening records of individuals granted unescorted access to the protected area?* - *Routine patrols?* - *Alarms received, type and location? Date? Time? Disposition of?* - *Safeguard events?*

Table 2 - Costs to Licensees for Spent Nuclear Fuel Physical Protection - Proposed (1994 $)[1,2]

COMPONENT	STARTUP CONSTRUCTION	ANNUAL OPERATING
PERIMETER FENCING	$46,500	$200
ILLUMINATION	$301,400	$600
ISOLATION ZONE	$45,000	$0
PID SYSTEM	$385,200	$7,300
WATCHMEN/ SECURITY	$40,300	$724,300
TOTAL	$818,400	$732,400

[1] *Means Electrical Cost Data, 1988.*
[2] *Means Facilities Cost Data, 1988.*

Table 3 - Costs to Licensees for Spent Nuclear Fuel Physical Protection - Final

COMPONENT	STARTUP CONSTRUCTION	ANNUAL OPERATING
PERIMETER FENCING	$46,500	$200
ILLUMINATION	$151,400	$600
ISOLATION ZONE	$45,000	$0
PID SYSTEM	$385,200	$7,300
WATCHMEN / SECURITY	$40,300	$722,300
TOTAL	$668,400	$730,400

ATTACHMENT 5

CONGRESSIONAL LETTERS

The Honorable Dan Schaefer, Chairman
Subcommittee on Energy and Power
Committee on Commerce
United States House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

The Nuclear Regulatory Commission has sent to the Office of the Federal Register, for publication, the enclosed final rule to amend 10 CFR Parts 60, 72, 73, 74, and 75, promulgating physical protection requirements for storage of spent fuel and high-level radioactive waste.

This final rule will codify standards for protecting spent fuel at the various storage facilities licensed under Part 72. Previous physical protection requirements for protecting such material lacked clarity in defining which physical protection regulations were to be applied at such sites.

The final rule has been revised, in response to the public comments, to eliminate any redundant requirements, add flexibility to rule implementation, and clarify specific issues identified by affected licensees.

Sincerely,

Dennis K. Rathbun, Director
Office of Congressional Affairs

Enclosure:
Federal Register Notice

cc: Representative Ralph Hall

The Honorable James M. Inhofe, Chairman
Subcommittee on Clean Air, Wetlands, Private
Property and Nuclear Safety
Committee on Environment and Public Works
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

The Nuclear Regulatory Commission has sent to the Office of the Federal Register, for publication, the enclosed final rule to amend 10 CFR Parts 60, 72, 73, 74, and 75, promulgating physical protection requirements for storage of spent fuel or high-level radioactive waste.

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The final rule has been revised, in response to the public comments, to eliminate any redundant requirements, add flexibility to rule implementation, and clarify specific issues identified by affected licensees.

Sincerely,

Dennis K. Rathbun, Director
Office of Congressional Affairs

Enclosure:
Federal Register Notice

cc: Senator Bob Graham

ATTACHMENT 6

PUBLIC ANNOUNCEMENT

NRC AMENDS REGULATIONS ON PHYSICAL PROTECTION FOR STORAGE OF SPENT FUEL

The Nuclear Regulatory Commission is amending its regulations for the physical protection of spent nuclear reactor fuel and high-level radioactive waste while in storage. The revisions clarify the requirements and reduce regulatory uncertainty, without reducing the level of protection of public health and safety.

The final rule requires licensees to:

- Store this type of material only within a protected area (an area with controlled access and physical barriers, such as chain-link fences with barbed wire topping or concrete walls);
- Protect the material by an additional barrier offering significant penetration resistance, such as an NRC-approved cask or a reactor building;
- Ensure that only authorized individuals are granted access to the protected area;
- Detect and assess unauthorized penetration of, or activities within, the protected area;
- Provide the capability for timely communication to a designated response force whenever necessary; and
- Establish a security organization with written procedures.

The amendments do not apply to the storage of spent fuel at operating power reactors, which are covered under other requirements. Types of storage facilities affected by the revisions are:

- Independent spent fuel storage installations that are designed, constructed and licensed specifically for the interim storage of spent fuel;
- A geologic repository that could be developed in the future by the Department of Energy (DOE); and
- Future storage facilities where interim waste storage activities may be conducted by DOE.

Other details of the regulation are contained in a Federal Register notice to be published shortly.

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ATTACHMENT 7

NOTIFICATION FOR CONGRESSIONAL REVIEW "SMALL BUSINESS REGULATORY ENFORCEMENT FAIRNESS ACT OF 1996"

Mr. Robert P. Murphy
General Counsel
General Accounting Office
Room 7175
441 G Street, N. W.
Washington, DC 20548

Dear Mr. Murphy:

Pursuant to Subtitle E of the Small Business Regulatory Enforcement Fairness Act of 1996, 5 U.S.C. 801, the Nuclear Regulatory Commission (NRC) is submitting a final rule amending its regulations in 10 CFR Parts 60, 72, 73, 74, and 75, for physical protection requirements for storage of spent fuel and high-level radioactive waste. This final rule will codify standards for protecting spent fuel at the various storage facilities licensed under Part 72. Previous requirements for protecting such material lacked clarity in defining which physical protection regulations were to be applied at such sites. The NRC is also submitting a companion document entitled: "NUREG-1619: Standard Review Plan for Physical Protection Plans for the Independent Storage of Spent Fuel and High-Level Radioactive Waste." NUREG-1619 is a standard review plan for the NRC review and evaluation of physical protection plans submitted by licensees in accordance with this final rule.

We have determined that this rule is not a "major rule," as defined in 5 U.S.C. 804(2). We have made the same determination with regard to NUREG-1619. We have confirmed these determinations with the Office of Management and Budget.

Enclosed is a copy of the final rule (see Enclosure 1), which is being transmitted to the Office of the Federal Register for publication. The Regulatory Flexibility Certification is included in the final rule. Also enclosed are copies of NUREG-1619 (Enclosure 2) and the "Regulatory Analysis" (Enclosure 3) that was prepared for this final rule which contains NRC's cost-benefit determinations. This final rule is scheduled to become effective 180 days after publication in the Federal Register.

Sincerely,

Dennis K. Rathbun, Director
Office of Congressional Affairs

Enclosures: As stated

The Honorable Al Gore
President of the United States Senate
Washington, DC 20510

Dear Mr. President:

Pursuant to Subtitle E of the Small Business Regulatory Enforcement Fairness Act of 1996, 5 U.S.C. 801, the Nuclear Regulatory Commission (NRC) is submitting a final rule amending its regulations in 10 CFR Parts 60, 72, 73, 74, and 75, for physical protection requirements for storage of spent fuel and high-level radioactive waste. This final rule will codify standards for protecting spent fuel at the various storage facilities licensed under Part 72. Previous requirements for protecting such material lacked clarity in defining which physical protection regulations were to be applied at such sites. The NRC is also submitting a companion document entitled: "NUREG-1619: Standard Review Plan for Physical Protection Plans for the Independent Storage of Spent Fuel and High-Level Radioactive Waste." NUREG-1619 is a standard review plan for the NRC review and evaluation of physical protection plans submitted by licensees in accordance with this final rule.

We have determined that this rule is not a "major rule," as defined in 5 U.S.C. 804(2). We have made the same determination with regard to NUREG-1619. We have confirmed these determinations with the Office of Management and Budget.

Enclosed is a copy of the final rule (see Enclosure 1), which is being transmitted to the Office of the Federal Register for publication. The Regulatory Flexibility Certification is included in the final rule. Also enclosed are copies of NUREG-1619 (Enclosure 2) and the "Regulatory Analysis" (Enclosure 3) that was prepared for this final rule which contains NRC's cost-benefit determinations. This final rule is scheduled to become effective 180 days after publication in the Federal Register.

Sincerely,

Dennis K. Rathbun, Director
Office of Congressional Affairs

Enclosures: As stated

The Honorable Newt Gingrich
Speaker of the United States House
of Representatives
Washington, DC 20515

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