

ORIGINAL

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

Title: Discussion/Affirmation and Vote

Location: Rockville, Maryland

Date: Wednesday, November 2, 1988

Pages: 1 - 4

SECRETARIAT RECORD COPY

Ann Riley & Associates

Court Reporters

1625 I Street, N.W., Suite 921

Washington, D.C. 20006

(202) 293-3950

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18
- 19
- 20
- 21
- 22
- 23
- 24
- 25

14 The transcript is intended solely for general
15 informational purposes. As provided by 10 CFR 9.103, it is
16 not part of the formal or informal record of decision of the
17 matters discussed. Expressions of opinion in this transcript
18 do not necessarily reflect final determination or beliefs.
19 No pleading or other paper may be filed with the Commission
20 in any proceeding as the result of, or addressed to, any
21 statement or argument contained herein, except as the
22 Commission may authorize.

1 UNITED STATES OF AMERICA
2 NUCLEAR REGULATORY COMMISSION

3 - - -

4 Discussion/Affirmation and Vote

5 - - -

6 One White Flint North

7 Rockville, Maryland

8 Wednesday, November 2, 1988

9 The Commission met, pursuant to notice, at 10:00
10 o'clock a.m., the Honorable Lando W. Zech, Jr., Chairman of the
11 Commission, presiding.

12 COMMISSIONERS PRESENT:

13 Lando W. Zech, Jr., Chairman

14 Thomas M. Roberts, Commissioner

15 Kenneth C. Rogers, Commissioner

16 STAFF SEATED AT TABLE:

17 Samuel Chilk, SECY

18 William Parler, OGC

19

20

21

22

23

24

25

P R O C E E D I N G S

CHAIRMAN ZECH: Good morning, ladies and gentlemen.

This is an affirmation session. We have one item to come before us this morning.

Before I ask the Secretary to walk us through this item, do any of my fellow Commissioners have any comments to make?

[No response.]

CHAIRMAN ZECH: If not, Mr. Secretary, you may proceed.

MR. CHILK: Mr. Chairman, before we can do that, the Commission will have to vote to hold this on less than one week's notice, and I wonder if I could have that vote now, sir.

[Chorus of ayes.]

MR. CHILK: The paper before the Commission is SECY 88-250, dealing with safeguard requirements for fuel facilities possessing formula quantities of SSN.

The Commission here is being asked to approve amendments to 10 CFR Part 73, which would upgrade safeguard requirements for fuel facilities possessing formula quantities of strategic special nuclear material.

The Commission, with Chairman Zech and Commissioners Roberts and Rogers agreeing, approved the Staff's recommended amendments which were attached to our November 1 memorandum. Commissioner Carr, while approving the rule changes, preferred

1 to defer the requirement for the two separate barriers, which
2 is one of the six upgrades, until completion of a performance
3 analysis of existing security systems to support the need for
4 such a change.

5 The Commission, with the Chairman and Commissioners
6 Roberts, Carr and Rogers agreeing, have requested the Staff to
7 initiate, pursuant to 10 CFR 73.5, an exemption from the new
8 requirement for Fort St. Vrain. The basis for issuing the
9 exemption is the fact that at Fort St. Vrain the special
10 nuclear material is only in a form of fabricated fuel. The
11 fuel would require extensive processing to yield weapons-usable
12 material.

13 Furthermore, the weight and bulk of the fuel elements
14 is such that they represent an undesirable source for the
15 material. Hence, there is no comparability with fuel
16 facilities possessing formula quantities of strategic special
17 nuclear material.

18 Commissioner Curtiss did not participate in this
19 matter.

20 Would you please affirm your votes.

21 [Chorus of ayes.]

22 CHAIRMAN ZECH: Is there anything else to come before
23 us this morning?

24 MR. CHILK: I have nothing.

25 CHAIRMAN ZECH: If not, thank you very much, and we

1 stand adjourned.

2 [Whereupon, at 10:02 a.m., the proceedings were
3 adjourned.]

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

CERTIFICATE OF TRANSCRIBER

**This is to certify that the attached events
of a meeting of the U.S. Nuclear Regulatory Commission
entitled:**

TITLE OF MEETING: Discussion/Affirmation and Vote

PLACE OF MEETING: ~~Washington, D.C.~~ Rockville, Md.

DATE OF MEETING: November 2, 1988

were transcribed by me. I further certify that said
transcription is accurate and complete, to the best
of my ability, and that the transcript is a true and
accurate record of the foregoing events.



ANN RILEY

Ann Riley & Associates, Ltd.



September 6, 1988

RULEMAKING ISSUE **(Affirmation)**

SECY-88-250

For: The Commissioners

From: Victor Stello, Jr.
Executive Director for Operations

Subject: 10 CFR PART 73 -- SAFEGUARDS REQUIREMENTS FOR FUEL FACILITIES
POSSESSING FORMULA QUANTITIES OF STRATEGIC SPECIAL NUCLEAR
MATERIAL

Purpose: To obtain Commission approval of a notice of final rulemaking.

Issue: Should the safeguards requirements set forth in Enclosure A be
imposed at NRC-licensed fuel facilities possessing formula quantities
of strategic special nuclear material (SSNM) to achieve
fully adequate and essentially equivalent protection of SSNM
between licensed and license-exempt sectors?

Background: The national goal of maintaining fully adequate and essentially
equivalent safeguards systems for weapons-usable material in the
licensed and license-exempt sectors was first expressed in 1974.
The objective of providing like protection for SSNM was iterated
in a number of National Security Council, Energy Research and
Development Administration (now DOE), Department of Defense, and
NRC communications. As a result, the NRC and DOE jointly conducted
coordination reviews of safeguards requirements. Full
details concerning the background of these reviews were provided
to the Commission in SECY-84-337 dated August 23, 1984.

In SECY's memorandum of December 7, 1987, the Commission approved
for publication proposed amendments to 10 CFR Part 73 upgrading
safeguards requirements for licensed fuel facilities possessing
formula quantities of SSNM. The proposed rule was published
December 31, 1987, in the Federal Register (52 FR 49418). It was

Contact:
K. Jamgochian, NMSS
492-0360

S. Frattali, RES
492-3773

consistent with the Commission guidance provided in SECY's memorandum to the EDO of June 8, 1987, entitled "NRC/DOE Comparability Review of Findings of Safeguards Programs at Fuel Facilities" (CNSI).

Upgrades were proposed in the following areas: (1) security system performance evaluation through tactical response exercises, (2) night firing qualification for guards using all assigned weapons, (3) search of 100 percent of entering personnel and packages (for explosives, firearms, and incendiary devices), (4) posting of armed guards at material access area (MAA) control points, (5) providing two separate physical personnel barriers around the protected area, and (6) revision of the design basis threat at these fuel facilities to include land vehicles as a means of transportation by adversaries attempting to commit theft and the provision of countermeasures to prevent forcible vehicle entry into the protected area.

Discussion:

Letters of comment in response to the proposed rule were received from six respondents: four from fuel facility licensees; one from the Department of Energy, and one from a manufacturer of fences who submitted specifications on a type of security fence but did not provide any actual comments on the rule itself.

Public comments that did not result in changes to the proposed rule are summarized and discussed in Enclosure A rather than in this paper. A comparative text of the current regulations with this final rule is provided as Enclosure B.

Tactical Response Exercises: As a result of the comments, the staff is recommending one substantive modification to the proposed rule. The proposed rule would have required licensees to conduct a total of 13 tactical response exercises each year, that would include three tactical response exercises per quarter (one for each eight-hour shift) plus one annual NRC-observed exercise. Half of the quarterly exercises and the annual NRC-observed exercise would have included force-on-force scenarios. The exercises would demonstrate the guard force state of readiness and test the effectiveness of the overall security system components. The results would be used to determine whether additional training or security system improvements are needed.

In consideration of the public comments received, the staff accepts that 13 exercises during the year may become less effective over time due to their frequent repetition and reduced learning curves. Therefore, the staff recommends a reduction in the number of required exercises. During the first year of licensee compliance with this rule, licensees would be required to hold one exercise per quarter per shift, half of which are to be force-on-force. The NRC will observe one of the quarterly

force-on-force exercises rather than require an additional annual exercise. The second year and thereafter, licensees would be required to hold one exercise per shift every four months, one-third of which will be force-on-force, with the NRC observing one of the force-on-force exercises, for a total of nine exercises per year. Licensees are to notify the NRC 60 days prior to the NRC-observed exercise.

The Commission explicitly requested solicitation of public comment on the requirement for equipping Tactical Response Team (TRT) members with 9mm semiautomatic pistols or whether an equivalent weapon of choice should be left up to the licensee. Only one comment (from a licensee) was received. It requested that the choice of weapon and weapon caliber should be left up to the individual licensee. The licensee believes that the NRC preference for the 9mm semiautomatic pistol, as noted in the proposed rule, is based on the faulty conclusion that greater firepower (e.g., increased availability of rounds) equates with an enhanced ability to hit the target, and that the 9mm's larger magazine (up to 15 rounds) and more rapid action allows for faster discharge of rounds and therefore, also increases the hit probability. The licensee also believes that other types of service revolvers can be equally justified and that after an in-depth evaluation of weapons and ammunition currently available, each licensee can determine which best meet the requirements for its facility.

The staff's rationale never included the conclusion that hit probability is increased by use of the 9mm semiautomatic handgun. Increased hit probability is a result of the shooter's proficiency achieved through proper training and practice. The staff's rationale for the requirement is based on the advantages of the weapon. The 9mm has less recoil than the .45 caliber, thus making it easier to control. Since it is easier to control, it may allow for increased accuracy. Further, in light of the growing trend among the criminal element worldwide toward the adoption of sophisticated automatic and semiautomatic weaponry, the 9mm provides added firepower which is considered necessary to counter the current threat while maintaining the necessary high degree of reliability and accuracy. Additionally, the semiautomatic pistol is also much easier to load in the dark, in cold weather, or when under duress. In the event of an attack on a facility by adversaries armed with semiautomatic weapons, TRT members equipped with standard six-round revolvers would need to reload ammunition long before the adversaries would. During reload, TRT responders could be exposed to deadly fire without defense. For these several reasons, the final rule retains the requirement that all TRT members be equipped with 9mm semiautomatic pistols, with qualification and annual requalification in both day and night firing courses. The choice of model and manufacturer is to be left up to the licensee.

Under the proposed rule, the perimeter of the protected area of a fuel facility possessing formula quantities of SSNM would be required to have a double physical personnel barrier. The two barriers would be constructed and installed to ensure the ability to assess an attempted penetration of the protected area perimeter at the time of the occurrence and to delay attempts at unauthorized exit from the protected area. The present intrusion detection systems required by NRC would be placed between these two barriers. The Commission explicitly requested the staff to solicit public comments on the security benefits of the second fence and solicit suggestions for cost-effective alternatives to the second fence that would protect SSNM at a level at least comparable to the level of protection at DOE facilities. While awaiting public comments, the staff was directed to analyze and report to the Commission, as part of the final rulemaking package, on the security benefits of a second fence and alternatives to the second fence that might achieve at least comparable protection at a cost of \$1 million or less.

In the sole letter of comment regarding this proposed double barrier requirement, DOE recommended that the proposed changes be deferred until completion of a performance analysis of the existing security system and the need for change has been determined. DOE pointed out that only very limited adversary delay time is provided by a perimeter fence, and the potential of a second perimeter barrier is realized only if designed to enhance assessment. Relative to the intrusion detection system, DOE proposed revising the requirement to call for optimum use of the present system and to leave the systems in their current locations until an evaluation of the usefulness of the present system through a performance exercise is made.

The NRC recognizes that DOE has not established a generic requirement for two perimeter fences. However, all DOE facilities reviewed by the NRC/DOE Comparability Review Group do have double perimeter barriers. The NRC believes that the performance standards achieved at these DOE facilities, which are met in part by double fences, should be provided at comparable NRC-licensed facilities.

The staff analysis on alternatives to the second fence and related cost estimates are set forth in Enclosure C. The alternatives considered include (1) special measures for vault and work area protection, (2) use of additional guards, and (3) use of alternative barrier materials. The analysis concludes that the standard 8-foot fence is the most cost-effective alternative.

Recommendations:

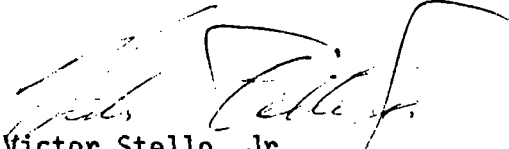
That the Commission:

1. Approve the amendments set forth in Enclosure A for publication in final form in the Federal Register.

2. Certify, in order to satisfy the requirements of the Regulatory Flexibility Act, 5 U.S.C. 605(b), that this rule, if promulgated, will not have a significant economic impact on a substantial number of small entities.
3. Note:
 - a. That the Environmental Assessment shows that the action proposed will not have a significant environmental impact (Enclosure D).
 - b. That the Environmental Assessment (Enclosure D) and Regulatory Analysis (Enclosure E) will be placed in the NRC Public Document Room.
 - c. That the information collection requirements in this final rule have been approved by the Office of Management and Budget under approval number 3150-0002.
 - d. That the appropriate Congressional Committees will be informed of the Commission's action (Enclosure F).
 - e. That a public announcement will be issued (Enclosure G).
 - f. That copies of the notice will be distributed by ARM to affected licensees and other interested parties.
 - g. That the Chief Counsel for Advocacy of the Small Business Administration will be informed of the certification and the reason for it as required by the Regulatory Flexibility Act.
 - h. That the Office of the General Counsel has no legal objections.

Scheduling:

It is recommended that this paper be considered at an open session and that this paper be placed in the Public Document Room on the day of the Commission meeting. Certain portions of the session may have to be closed.


Victor Stello, Jr.
Executive Director for Operations

Enclosures:

- A - Federal Register Notice of Final Rulemaking
- B - Comparative Text
- C - Analysis of Alternatives to a Second Fence
- D - Environmental Assessment
- E - Regulatory Analysis
- F - Draft Congressional Letter
- G - Draft Public Announcement

Commissioners' comments or consent should be provided directly to the Office of the Secretary by c.o.b. Wednesday, September 21, 1988.

Commission Staff Office comments, if any, should be submitted to the Commissioners NLT Wednesday, September 14, 1988, with an information copy to the Office of the Secretary. If the paper is of such a nature that it requires additional time for analytical 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 September 26, 1988. Please refer to the appropriate Weekly Commission Schedule, when published, for a specific date and time.

DISTRIBUTION:

Commissioners

OGC

OI

OIA

GPA

REGIONAL OFFICES

EDO

ACRS

ASLBP

ASLAP

SECY

ENCLOSURE A

Federal Register Notice of Final Rulemaking

NUCLEAR REGULATORY COMMISSION

10 CFR PART 73

Safeguards Requirements for Fuel Facilities Possessing
Formula Quantities of Strategic Special Nuclear Material

AGENCY: Nuclear Regulatory Commission

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its physical protection and security personnel performance regulations and its design basis threat for fuel facilities possessing formula quantities of strategic special nuclear material (SSNM) to require protection equivalent to that in place at comparable Department of Energy (DOE) fuel facilities. These changes have been prompted by a recent study that compared NRC's security requirements for SSNM with DOE's recently upgraded security system. The changes are also supported by findings from reviews of safeguards event reports, Regulatory Effectiveness Reviews, and inspection reports. The amendments provide greater assurance that physical protection measures at these fuel facilities can protect against theft.

EFFECTIVE DATE: Thirty days after publication in the Federal Register.

FOR FURTHER INFORMATION CONTACT: Dr. Sandra Frattali, Division of Regulatory Applications, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone

(301)492-3773; or Kristina Z. Jamgochian, Division of Safeguards and Transportation, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301)492-0360.

SUPPLEMENTARY INFORMATION:

Background

In 1974, a national goal was established that nuclear weapons-usable material, whether in the licensed or license-exempt sector, should receive fully adequate and essentially comparable levels of protection. The objective of providing comparable protection for SSNM has been reiterated in a number of subsequent communications by the National Security Council, Energy Research and Development Administration (now DOE), Department of Defense, and NRC. In consonance with this objective, reviews have been conducted periodically by joint NRC/DOE review teams. The findings from the most recent review (1986) indicated that DOE has placed increased emphasis on guard weaponry, training, and tactical response exercises and has upgraded some physical security measures. To maintain comparability with DOE as well as to respond to recent NRC security reviews, the NRC is amending its physical protection regulations for licensed fuel facilities possessing formula quantities of SSNM. These amendments will provide greater assurance that security systems and security force capabilities at these facilities are comparable to those used by DOE. A remaining comparability issue relates to the use of deadly force by licensee guards. This issue is being addressed separately and is not covered by these amendments.

On December 31, 1987, the NRC published in the Federal Register (52 FR 49418) a proposed rule for upgrading safeguards requirements for licensed fuel facilities possessing formula quantities of SSNM. The upgrades called for: (1) security system performance evaluation through tactical response exercises, (2) night firing qualification for guards using all assigned weapons, (3) search of 100 percent of entering personnel and packages (for explosives, firearms, and incendiary devices), (4) posting of armed guards at MAA control points, (5) providing two separate physical personnel barriers around the protected area, and (6) revision of the design basis threat at these fuel facilities to include land vehicle use by adversaries attempting to commit theft and require the implementation of countermeasures to prevent forcible vehicle entry into the protected area. The comment period ended on March 30, 1988.

Summary of Public Comment

Letters of comment were received from six respondents: four from fuel facility licensees, one from DOE, and one from a manufacturer of fences who submitted specifications on a type of security fence but did not comment on the rule itself. Copies of comment letters are available for public inspection and copying for a fee at the NRC Public Document Room at 1717 H Street NW., Washington, DC.

A summary of the public comments and their resolution follows. The comments are organized in the following categories:

1. Performance Evaluation Through Tactical Response Exercises and Tactical Response Teams (TRT)
2. Guard Force Weaponry

3. Personnel, Package, and Material Entrance Search
4. Protected Area Physical Barriers

1. Performance Evaluation Through Tactical Response Exercises and Tactical Response Teams

Under the proposed rule, affected licensees would conduct tactical response exercises for each guard force shift on a quarterly basis. The exercises would demonstrate the guard force state of readiness and test the effectiveness of delay mechanisms, alarm and communication systems, response times, deployment of response forces, firing skills (simulated), and tactical maneuvers. The results would be used to determine whether additional training or security system improvements are needed. The exercises are not intended to be viewed in terms of "pass" or "fail." The quarterly exercises could be of short duration, would have at least one exercise per guard shift, and would cumulatively represent the various lighting conditions during a 24-hour day. Each year, at least two of the quarterly exercises for each shift would include force-on-force scenarios. Also proposed was an additional, more extensive annual exercise to be observed by NRC representatives that would include force-on-force scenarios.

One letter of comment stated that quarterly exercises are more frequent than necessary and requested a reduction in the number of exercises to one per shift every four months. Another respondent requested that the NRC observe one of the quarterly force-on-force exercises rather than have the licensee conduct a special annual exercise. A third respondent requested clarification of the number of exercises and how much prior notice the NRC needed before the NRC-observed annual exercise.

The NRC staff accepts that a routine of 13 exercises per year, seven of which are force-on-force (based on a three-shift operation, one exercise per shift per quarter, plus one annual exercise) can, over time, become less effective due to their frequent repetition and reduced learning curve. Therefore, this final rule is being modified to require a licensee, during the first year of rule implementation, to conduct a total of 12 exercises (one exercise per quarter per shift), half of which are to be force-on-force. The NRC will observe one of the quarterly force-on-force exercises and will not require an additional annual exercise. This reduces the number of exercises during the first year of compliance to 12 for a three-shift operation. During the second year and each year thereafter, licensees will be required to conduct nine exercises per year (one exercise per shift every four months), one-third of which will be force-on-force, with the NRC observing one of the force-on-force exercises. The NRC is to be notified 60 days prior to an NRC-observed, force-on-force exercise so that possible scheduling conflicts can be resolved.

This final rule requires licensees to establish a designated TRT and replaces the current general requirement for an armed response force. Creation of TRTs is expected to provide more highly motivated, professional, and effective organizations to respond to and prevent forceful attempts to remove SSNM from licensee sites. This rule also requires that TRT members have individually assigned, upgraded weaponry and an item of uniform distinctive and different from that of the guard force (e.g., cap, armband, etc.).

One licensee objected to the NRC replacing the term "armed response personnel" with "Tactical Response Team." This licensee believed that

it should not be restricted in selection of a title, since the title/designation of its response force is changed periodically for security purposes. The NRC does not object to a licensee using different code names or changing code names for its TRT. When amending the security plan, however, a licensee shall use the term "Tactical Response Team."

This licensee also objected to the proposed requirement that TRT members have a distinctive item of uniform. It was the licensee's experience that fostering a spirit of elitism among a small group of individuals within the security force often only serves to create a schism and affects morale unfavorably. The NRC accepts that the establishment of the TRT could have unfavorable effects on the morale of some personnel as foreseen by the licensee. However, these negative factors, if indeed they develop, are far less important than the need for a highly effective response capability. Moreover, an elite group within the guard force need not to be viewed negatively by the remaining guard force if presented properly. All members of a security force could be eligible to qualify as TRT members (as opposed to being singled out by the licensee). Ideally, if all members of the security force qualify as TRT members, they can be rotated through the schedule on an equal basis, thereby alleviating the concern of creating a separate elitist group and making shift scheduling easier.

The licensee was also concerned that a distinctive item of uniform could single out TRT members to an adversary. The NRC accepts this as a valid concern. However, the distinctive item could be small, such as a pin or badge, and not noticeable at a distance.

Under the proposed amendment, TRT members and guards who are eligible to be TRT members would have to successfully complete training in response

tactics. The training would be in addition to the individual training currently required in Appendix B to Part 73. No specific criteria or standards for the training in response tactics were provided with the proposed rule. A licensee respondent suggested that the NRC should establish minimum standards but that the standards or criteria should be adaptable to site-specific situations.

The NRC agrees with this suggestion. A Tactical Training Manual has been developed for licensee use. The material can be adapted and used under a variety of conditions and circumstances. The manual provides viable approaches for licensees to use in structuring site-specific tactical response training programs.

2. Guard Force Weaponry

Under the proposed rule, all TRT members would be armed with 9mm semiautomatic pistols. Many major city law enforcement agencies, SWAT teams, and the U.S. military are shifting from revolvers to semiautomatic pistols in order to take advantage of sustained fire capability. These police upgrades respond to increased encounters with adversaries using more sophisticated weapons. After conducting a literature review and discussing with various agencies their rationale for converting from revolvers to semiautomatic pistols, the NRC included in the proposed amendments a requirement for TRT members only (not other security force personnel) to be armed with 9mm semiautomatic pistols.

The Commission explicitly solicited public comment on the requirement for equipping TRT members with semiautomatic pistols and on whether the final choice of weapons should be left to the licensee. Only one response (from a licensee) was received. It stated that the choice of

weapon and caliber of weapon should be left to the individual licensee. This licensee believes that the NRC is justifying the requirement for a 9mm semiautomatic pistol on the faulty conclusions (1) that greater firepower (increased availability of rounds) equates with an enhanced ability to hit the target, and (2) that the 9mm's larger magazine (up to 15 rounds) and more rapid action allows for faster discharge of rounds and increased hit probability. The licensee also stated that certain types of revolvers could be equally justified and that after an in-depth evaluation of weapons and ammunition currently available, each licensee could best determine which meet the requirements of the site.

The NRC's rationale for the requirement is based on the advantages of the weapon. The 9mm has less recoil than revolvers currently used, making it easier to control, and thereby allowing increased accuracy. In light of the growing worldwide trend among the criminal element toward the adoption of sophisticated automatic and semiautomatic weaponry, the 9mm provides added firepower considered necessary while maintaining the necessary high degree of reliability and accuracy. Additionally, the semiautomatic pistol is easier to load in the dark, in the cold, or when one is under stress. In the event adversaries armed with semiautomatic weapons attack a facility where TRT members are equipped with standard six-round revolvers, the TRT responders would need to reload ammunition long before the opponents would. During reloading, TRT responders could be exposed to deadly fire without defense. The ability to sustain fire is of major importance. This final rule requires that all TRT members be equipped with 9mm semiautomatic pistols, with qualification and annual requalification in both day and night firing courses. The choice of model and manufacturer is left to the licensee.

The proposed rule required each TRT member be armed with a shoulder fired weapon, and at least one TRT member carry a .30 caliber or 7.62mm rifle. The requirement for a heavier rifle would provide additional effectiveness against the use of land vehicles, which is now included in the design basis threat.

Letters of comment on this issue were received from two licensees. One licensee did not agree with the large caliber weapon requirement and recommended that this option be left up to the licensee. The licensee asserted that a rifle of .30 caliber or 7.62mm will not immediately stop a vehicle and if that was NRC's intent, then nothing less than a .50 caliber heavy machine gun would be needed. A second licensee requested an exemption from this requirement due to the configuration and limited size of its facility. This licensee was concerned about various problems due to the proximity of high population areas and public reaction and, therefore, believed it unnecessary and dangerous to arm TRT members with large caliber rifles.

The requirement that one TRT member carry a rifle of at least .30 caliber or 7.62mm is retained in the final rulemaking. The Commission believes that additional capability should be available to defend against adversaries in a vehicle attempting to penetrate a protected area boundary. The intent of this requirement is not to stop the vehicle immediately, but to disable adversaries inside the vehicle. Any site-specific considerations that licensees may have once this final rulemaking is effective should be dealt with on an individual basis through appropriate procedures.

Under the proposed rule, TRT members on duty would be required to carry their individually assigned shotgun or semiautomatic rifle, with one member carrying the .30 caliber or 7.62mm weapon. Two licensee

respondents believed that the weapons need not be carried but should be readily available i.e., kept at strategic locations throughout the facility. Both respondents noted that there were times when carrying shoulder fired weapons was not practical and were concerned about the safety hazard involved should the weapon have to be laid down (i.e., lunch, restrooms). Additional concerns were that the weapons may be functionally abused during the TRT members normal activities of climbing ladders and maneuvering through close areas, or contaminated should the weapon have to be laid down while performing searches in material access areas.

The requirement for TRT members to carry their assigned shoulder fired weapons while on duty is included in this final rule. The requirement "to carry" is not to be interpreted to mean "hand carry" but to be on the person as in a shoulder sling. The normal duties of a TRT member should permit immediate response and, therefore, should not include routine searches at material access areas. Likewise, while on lunch break, a TRT member should be relieved by another TRT-qualified security officer in order to avoid the need to lay the weapon down. The main rationale for TRT members to carry their assigned weapons is to permit immediate response. In the event of an adversary attack the time delay caused by retrieving weapons from strategically located repositories could have an adverse impact on the successful containment of the adversaries.

3. Personnel, Package, and Material Entrance Search

Under the proposed amendments, search for explosives, firearms, and incendiary devices would be required of 100 percent of entering personnel

and packages except for Federal, State, and local law enforcement personnel on official duty. Also, under the proposed amendments, present exemptions would continue for those delivery and inspection activities specifically designated by the licensee and approved by the Commission to be carried out within material access, vital, or protected areas for reasons of safety, security, or operational necessity.

One licensee respondent recommended that "Q" cleared armed security officers should be included in the exemption based on the fact that it could see no benefit in performing a prohibited article search on a security officer overtly carrying a weapon. In response, it is pointed out that of concern to the NRC is the issue of an insider attempting to introduce not only firearms, but also explosives and incendiary devices inside a protected area. Under this criterion, although a security officer displays an authorized handgun, searching the officer for explosives, incendiary devices, and unauthorized weapons is still necessary before the officer enters a protected area. Accordingly, the proposed search requirement is retained unchanged in the final rule.

4. Protected Area Physical Barriers

Under the proposed rule, the perimeter of the protected area of a fuel facility possessing formula quantities of SSNM would be required to have a double physical personnel barrier. The two barriers would be constructed and installed primarily to ensure the ability to assess an attempted penetration of the protected area perimeter at the time of the occurrence and secondarily to delay attempts at unauthorized exit from

the protected area. The present intrusion detection systems required by NRC would be located between these two barriers.

In the sole letter of comment regarding the proposed requirement, DOE recommended that the proposed changes be deferred until a performance analysis of the existing security system has been completed and the need for change has been determined. In its detailed comments, DOE stated that two perimeter fences are not a DOE requirement and that double fences, where they have been installed, are installed on the basis of the overall performance of all security systems at these sites. DOE pointed out that only very limited adversary delay time is provided by a perimeter fence, and the potential of a second perimeter barrier is realized only if designed to enhance assessment. Relative to the intrusion detection system, DOE proposed revising the requirement to call for optimum use of the present systems and leaving the systems in their current locations until an evaluation of the usefulness of these present systems through a performance exercise is made.

The NRC recognizes that DOE has not established a generic requirement for two perimeter fences. However, all DOE facilities reviewed by the NRC/DOE Comparability Review Group do have double perimeter barriers. The NRC believes that the performance standards achieved at these DOE facilities, which are met in part by double fences, should be provided at comparable NRC-licensed facilities.

In guidance to affected licensees NRC makes clear that the intrusion detection system and the inner barrier are to be positioned and constructed to assure adequate delay after an intruder triggers an alarm. The delay must be sufficient to permit a defender to determine positively whether the triggering was due to an intruder. The interrelationship of

the perimeter intrusion detection system and the double barriers is so close that it is essential to treat improvements to them simultaneously. Therefore, it is necessary for the overall performance of the protection system that the double barrier system and intrusion detection system locations (and possible reinstallation) be designed in concert. For these reasons, the barrier requirement is retained in the final rule.

Other Changes: Weapons Qualification

These amendments require night firing qualification and annual requalification by the security force and TRT members with all weapons assigned to them. This revises the current requirement for night familiarization firing only. Specified courses (included in Appendix H) for qualification and annual requalification with revolvers, shotguns, and rifles are added as requirements in this final rulemaking. Licensees may develop and submit for NRC approval a qualification course for day firing for 9mm semiautomatic pistols which TRT members must now carry. Additionally, licensees may also substitute shoulder firing for hip firing for the day shotgun qualification course contained in Appendix B to Part 73 and reflect this change in their amended security plan. Licensees are required to retain the documentation of each qualification and requalification as a record for three years after each qualification and requalification. Microfilm documents are acceptable.

Implementation

Currently, under conditions of license, licensees carry out certain of the measures called for in the amendments, namely: (1) search of 100 percent of personnel and packages admitted to the protected area,

(2) posting of armed guards at MAA control points, and (3) night firing qualification for guards using all assigned weapons. Under the new amendments, each licensee will modify its physical security plan to show how all of the new requirements would be carried out and will submit the plan to the NRC for approval within 180 days after the effective date of these amendments. The license conditions listed earlier will be withdrawn at the time that the corresponding commitments in the approved plan become effective. The licensee will carry out the various additional new commitments not already implemented by license conditions in the approved plan commencing at various dates, ranging from 30 to 365 days after NRC approval of the plan.

Finding of No Significant Environmental Impact

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in Subpart A of 10 CFR Part 51, that this rule, if adopted, would not be a major Federal action significantly affecting the quality of the human environment and, therefore, an environmental impact statement is not required. These amendments affect neither the safety of operation nor the routine release of, or exposure to, radioactivity from fuel facilities possessing formula quantities of SSNM. Their only intent is to provide greater protection against the revised design basis threat and thus reduce the risks of theft of SSNM from these facilities. Of the six measures proposed, three have no identifiable environmental impact; namely, initiation of security system performance evaluations through tactical team exercises, night firing qualification of guards using all

assigned weapons, and posting of armed guards at MAA control points. The 100 percent search of entering personnel and packages would require installation of additional walk-through detection equipment which likely would require construction activities to expand or modify the existing building in which this equipment is located. The requirement regarding protected area personnel barriers would necessitate construction, on the licensee's property, of a second barrier. Finally, the installation of structures to prevent forcible vehicle entry would likely require the deployment of vehicle barriers which would be installed on the licensee's property at or near the protected area boundary at points accessible to vehicles. These construction activities at four current licensee sites and at any sites of future fuel facility licensees who require possession of formula quantities of SSNM are considered to have a minor impact on the environment and support a finding that the final rule involves no significant environmental impact. The environmental assessment and finding of no significant impact on which this determination is based are available for inspection at the NRC Public Document Room, 1717 H Street NW., Washington, DC 20555. Single copies of the environmental assessment and finding of no significant impact are available from Dr. Sandra D. Frattali, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301)492-3773.

Paperwork Reduction Act Statement

This rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). These

requirements were approved by the Office of Management and Budget under approval number 3150-0002.

Public reporting burden for this collection of information is estimated to average 2.2 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Docketing and Service Branch; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

Regulatory Analysis

The Commission has prepared a regulatory analysis on this rule. The analysis examines the costs and benefits of the alternatives considered by the Commission. The analysis is available for inspection in the NRC Public Document Room, 1717 H Street NW., Washington, DC 20555. Single copies of the analysis may be obtained from Dr. Sandra D. Frattali, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301)492-3773.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission hereby certifies that this rule does not have a

significant economic impact upon a substantial number of small entities. The rule affects four licensees who operate fuel facilities possessing formula quantities of SSNM under 10 CFR Parts 70 and 73. They are GA Technologies Inc., La Jolla, California; Nuclear Fuel Services, Erwin, Tennessee; Babcock & Wilcox, Lynchburg, Virginia; and United Nuclear Corporation, Uncasville, Connecticut. The companies that own these plants are dominant in their service areas and do not fall within the scope of the definition of small entities set forth in § 605(b) of the Regulatory Flexibility Act of 1980 or within the definition of Small Business size standards set out in regulations issued by the Small Business Administration at 13 CFR Part 121.

Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule and, therefore, a backfit analysis is not required since these amendments do not involve any provisions which would impose backfits as defined in 10 CFR 50.109(a)(1).

List of Subjects in 10 CFR Parts 2, 70, and 73

Part 2 - Administrative practice and procedure, Antitrust, Byproduct material, Classified information, Environmental protection, Nuclear materials, Nuclear power plants and reactors, Penalty, Sex discrimination, Source material, Special nuclear material, Waste treatment and disposal.

Part 70 - Hazardous materials-transportation, Nuclear materials, Packaging and containers, Penalty, Radiation protection, Reporting and recordkeeping requirements, Scientific equipment, Security measures, Special nuclear material.

Part 73 - Hazardous materials-transportation, Incorporation by reference, Nuclear materials, Nuclear power plants and reactors, Penalty, 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 2, 70, and 73.

PART 2--RULES OF PRACTICE FOR DOMESTIC LICENSING PROCEEDINGS

1. The authority citation for Part 2 continues to read as follows:

AUTHORITY: Sec. 161, 58 Stat. 948, as amended (42 U.S.C. 2201); sec. 201, 88 Stat. 1242, as amended (42 U.S.C. 5841).

2. In Appendix C of Part 2, footnote 4 to Table 1A is amended by revising "(as defined in 10 CFR 73.2(bb))" to read "(as defined in 10 CFR 73.2)."

3. In Appendix C of Part 2, footnote 10 to Supplement III is revised to read "¹⁰See 10 CFR 73.2 for the definition of 'formula quantity.'"

4. In Appendix C of Part 2, footnote 11 to Supplement III is revised to read "¹¹See 10 CFR 73.2 for the definition of 'special nuclear material of moderate strategic significance.'"

5. In Appendix C of Part 2, footnote 12 to Supplement III is revised to read "See 10 CFR Part 73.2 for the definition of 'special nuclear material of low strategic significance.'"

PART 70--DOMESTIC LICENSING OF SPECIAL NUCLEAR MATERIAL

6. The authority citation for Part 70 continues to read as follows:

AUTHORITY: Sec. 161, 58 Stat. 948, as amended (42 U.S.C. 2201); sec. 201, 88 Stat. 1242, as amended (42 U.S.C. 5841).

7. In § 70.22, paragraph (k) is amended by revising "as defined under § 73.2(x) and (y) of this chapter" to read "as defined under § 73.2 of this chapter."

PART 73--PHYSICAL PROTECTION OF PLANTS AND MATERIALS

8. The authority citation for CFR Part 73 is revised 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 (42 U.S.C. 5841, 5844).

Section 73.37(f) is 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. 206, Pub. L. 99-399 and sec. 161i, 68 Stat. 949 (42 U.S.C. 2201(i)).

For the purposes of sec. 223, 68 Stat. 958, as amended (42 U.S.C. 2273); §§ 73.21, 73.37(g), and 73.55 are issued under sec. 161b, 68 Stat. 948, as amended (42 U.S.C. 2201(b)); §§ 73.20, 73.24, 73.25, 73.26, 73.27,

73.37, 73.40, 73.45, 73.46, 73.50, 73.55, and 73.67 are issued under sec. 161i, 68 Stat. 949, as amended (42 U.S.C. 2201(i)); and §§ 73.20(c)(1), 73.24(b)(1), 73.26(b)(3), (h)(6), and (k)(4), 73.27(a) and (b), 73.37(f), 73.40(b) and (d), 73.46(g)(6), and (h)(2), 73.50(g)(2), (3)(iii)(B), and (h), 73.55(h)(2) and (4)(iii)(B), 73.70, 73.71, and 73.72 are issued under sec. 161o, 68 Stat. 950, as amended (42 U.S.C. 2201(o)).

9. In Section 73.1, paragraph (a)(2)(i) is revised to read as follows:

§ 73.1 Purpose and scope.

(a) * * *

(2) Theft or diversion of formula quantities of strategic special nuclear material.

(i) A determined, violent, external assault, attack by stealth, or deceptive actions by a small group with the following attributes, assistance, and equipment:

(A) Well-trained (including military training and skills) and dedicated individuals;

(B) Inside assistance that may include a knowledgeable individual who attempts to participate in a passive role (e.g., provide information), an active role (e.g., facilitate entrance and exit, disable alarms and communications, participate in violent attack), or both;

(C) Suitable weapons, up to and including hand-held automatic weapons, equipped with silencers and having effective long-range accuracy;

(D) Hand-carried equipment, including incapacitating agents and explosives for use as tools of entry or for otherwise destroying reactor,

facility, transporter, or container integrity or features of the safe-guards system;

(E) Land vehicles used for transporting personnel and their hand-carried equipment; and

(F) The ability to operate as two or more teams.

* * * * *

10. In § 73.2, remove all alphabetical designators and place all definitions in alphabetical sequence; paragraph (1) of the definition of "Special nuclear material of low strategic significance" is amended by removing "§ 73.2(x)(1)" and inserting "paragraph (1) of the definition of strategic nuclear material of moderate strategic significance set out in this section"; insert new definition, "Tactical Response Team," in proper alphabetical sequence; and revise paragraph (1) of the definition for "Physical Barrier" to read as follows:

§ 73.2 Definitions.

* * * * *

"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° from the vertical, with an overall height of not less than eight feet, including the barbed topping;

* * * * *

"Tactical Response Team" means the primary response force for each shift which can be identified by a distinctive item of uniform, armed with specified weapons, and whose other duties permit immediate response.

* * * * *

11. In § 73.46, paragraphs (b)(3)(i), (b)(4), (b)(6), (c)(1), (d)(4)-(6), (d)(9), and (h)(3) are revised and paragraphs (b)(7)-(9) and (i) are added to read as follows:

§ 73.46 Fixed site physical protection systems, subsystems, components, and procedures.

* * * * *

(b) Security organization. * * *

(3) * * *

(i) Written security procedures which document the structure of the security organization and which detail the duties of the Tactical Response Team, guards, watchmen, and other individuals responsible for security. The licensee shall retain a copy of the current procedures as a record until the Commission terminates the license for which these procedures were developed and, if any portion of these procedures is superseded, retain the superseded material for three years after each change; and

* * * * *

(4) The licensee may not permit an individual to act as a guard, watchman, Tactical Response Team member, or other member of the security organization unless the individual has been trained, equipped, and qualified to perform each assigned security duty in accordance with Appendix B of this part, "General Criteria for Security Personnel." In addition, guards and Tactical Response Team members shall be trained, equipped, and qualified in accordance with paragraphs (b)(6) and (b)(7) of this section. Upon the request of an authorized representative of the Commission, the licensee shall demonstrate the ability of the physical security personnel, whether licensee or contractor employees, to carry out their assigned duties and responsibilities. Each guard, watchman,

Tactical Response Team member, or other member of the security organization, whether a licensee or contractor employee, shall requalify in accordance with Appendix B of this part, and, for guards and Tactical Response Team members, in accordance with paragraph (b)(7) of this section, at least every 12 months. The licensee shall document the results of the qualification and requalification. The licensee shall retain the documentation of each qualification and requalification as a record for three years after each qualification and requalification.

* * * * *

(6) Each guard shall be armed with a handgun, as described in Appendix B of this part. Each Tactical Response Team member shall be armed with a 9mm semiautomatic pistol. All but one member of the Tactical Response Team shall be armed additionally with either a shotgun or semiautomatic rifle, as described in Appendix B to this part. The remaining member of the Tactical Response Team shall carry, as an individually assigned weapon, a rifle of no less caliber than .30 inches or 7.62mm.

(7) In addition to the qualification criteria of Appendix B of this part, guards and Tactical Response Team members shall qualify and requalify annually for night firing with assigned weapons in accordance with Appendix H of this part. The licensee or the licensee's agent shall document the results of weapons qualification and requalification for night firing. The licensee shall retain the documentation of each qualification and requalification as a record for three years after each qualification and requalification.

(8) In addition to the training requirements contained in Appendix B of this part, Tactical Response Team members shall successfully complete training in response tactics. The licensee shall document the

completion of training. The licensee shall retain the documentation of training as a record for three years after training is completed.

(9) The licensee shall conduct Tactical Response Team and guard exercises to demonstrate the overall security system effectiveness and the ability of the security force to perform response and contingency plan responsibilities and to demonstrate individual skills in assigned team duties. During the first 12-month period following the date specified in paragraph (i)(2)(ii) of this section, an exercise must be carried out at least every three months for each shift, half of which are to be force-on-force. Subsequently, during each 12-month period commencing on the anniversary of the date specified in paragraph (i)(2)(ii) of this section, an exercise must be carried out at least every four months for each shift, one third of which are to be force-on-force. The licensee shall use these exercises to demonstrate its capability to respond to attempts to steal strategic special nuclear material. During each of the 12-month periods, the NRC shall observe one of the force-on-force exercises which demonstrates overall security system performance. The licensee shall notify the NRC of the scheduled exercise 60 days prior to that exercise. The licensee shall document the results of all exercises. The licensee shall retain the documentation of each exercise as a record for three years after each exercise is completed.

(c) Physical barrier subsystems. (1) Vital equipment must be located only within a vital area, and strategic special nuclear material must be stored or processed only in a material access area. Both vital areas and material access areas must be located within a protected area so that access to vital equipment and to strategic special nuclear material requires passage through at least three physical barriers. The

perimeter of the protected area must be provided with two separated physical barriers with an intrusion detection system placed between the two. The inner barrier must be positioned and constructed to enhance assessment of penetration attempts and to delay attempts at unauthorized exit from the protected area. The perimeter of the protected area must also incorporate features and structures that prevent forcible vehicle entry. More than one vital area or material access area may be located within a single protected area.

* * * * *

(d) Access control subsystems and procedures.

* * * * *

(4)(i) The licensee shall control all points of personnel and vehicle access into a protected area. Identification and search of all individuals for firearms, explosives, and incendiary devices must be made and authorization must be checked at these points except for Federal, State, and local law enforcement personnel on official duty and United States Department of Energy couriers engaged in the transport of special nuclear material. The search function for detection of firearms, explosives, and incendiary devices must be accomplished through the use of detection equipment capable of detecting both firearms and explosives. The individual responsible for the last access control function (controlling admission to the protected area) shall be isolated within a structure with bullet resisting walls, doors, ceiling, floor, and windows.

(ii) When the licensee has cause to suspect that an individual is attempting to introduce firearms, explosives, or incendiary devices into a protected area, the licensee shall conduct a physical pat-down search of that individual. Whenever firearms or explosives detection equipment

at a portal is out of service or not operating satisfactorily, the licensee shall conduct a physical pat-down search of all persons who would otherwise have been subject to search using the equipment.

(5) At the point of personnel and vehicle access into a protected area, all hand-carried packages except those carried by individuals exempted from personal search under the provisions of paragraph (d)(4)(i) of this part must be searched for firearms, explosives, and incendiary devices.

(6) All packages and material for delivery into a protected area must be checked for proper identification and authorization and searched for firearms, explosives, and incendiary devices prior to admittance into the protected area, except those Commission-approved delivery and inspection activities specifically designated by the licensee to be carried out within material access, vital, or protected areas for reasons of safety, security, or operational necessity.

* * * * *

(9) The licensee shall control all points of personnel and vehicle access to material access areas, vital areas, and controlled access areas. At least two armed guards trained in accordance with the provisions contained in paragraph (b)(7) of this section and Appendix B of this part shall be posted at each material access area control point whenever in use. Identification and authorization of personnel and vehicles must be verified at the material access area control point. Prior to entry into a material access area, packages must be searched for firearms, explosives, and incendiary devices. All vehicles, materials and packages, including trash, wastes, tools, and equipment exiting from a material access area must be searched for concealed strategic special

nuclear material by a team of at least two individuals who are not authorized access to that material access area. Each individual exiting a material access area shall undergo at least two separate searches for concealed strategic special nuclear material. For individuals exiting an area that contains only alloyed or encapsulated strategic special nuclear material, the second search may be conducted in a random manner.

* * * * *

(h) Contingency and response plans and procedures.

* * * * *

(3) A Tactical Response Team consisting of a minimum of five (5) members must be available at the facility to fulfill assessment and response requirements. In addition, a force of guards or armed response personnel also must be available to provide assistance as necessary. The size and availability of the additional force must be determined on the basis of site-specific considerations that could affect the ability of the total onsite response force to engage and impede the adversary force until offsite assistance arrives. The rationale for the total number and availability of onsite armed response personnel must be included in the physical protection plans submitted to the Commission for approval.

* * * * *

(i) Implementation schedule for revisions to physical protection plans. (1) By (180 days after the effective date of these amendments) each licensee shall submit a revised fixed site physical protection plan to the Commission for approval. The revised plan must describe how the licensee will comply with the requirements of paragraphs (b)(3)(i), (b)(4), (b)(6), (b)(7), (b)(8), (b)(9), (c)(1), (d)(4), (d)(5), (d)(6),

(d)(9), and (h)(3) of this section. Revised plans must be mailed to the Director, Division of Safeguards and Transportation, U.S. Nuclear Regulatory Commission, Washington, DC 20555.

(2) Each licensee shall carry out the new commitments in the revised plan in accordance with the following schedule:

(i) Commencing 30 days after Commission approval of the revised plan for commitments related to paragraphs (b)(3)(i), (d)(4), (d)(5), (d)(6) and (d)(9) of this section.

(ii) Commencing 60 days after Commission approval of the revised plan for commitments related to paragraphs (b)(4), (b)(6), (b)(7), (b)(8), (b)(9) and (h)(3) of this section.

(iii) Commencing 365 days after Commission approval of the revised plan for commitments related to paragraph (c)(1) of this section.

12. A new Appendix H is added to read as follows:

[See attached appendix.]

Dated at Rockville, MD, this _____ day of _____, 1988.

For the Nuclear Regulatory Commission.

Samuel J. Chilk,
Secretary of the Commission.

APPENDIX H
MINIMUM QUALIFICATION CRITERIA FOR NIGHT FIRING

WEAPON	STAGE	DISTANCE	NO. ROUNDS	TIMING	POSITION	TARGET	SCORING	LIGHTING
<u>HANDGUN</u>								For all courses
Revolver	1	7 yds	12	35 sec	standing - no artificial support.	B-27	Minimum qualifying = 70%	.2 footcandles at center mass of target area.
	2	15 yds	12	45 sec	standing - no artificial support.			
Semi-automatic	1	7 yds	2 + clip	30 sec	standing - no artificial support.		Minimum qualifying = 70%	
	2	15 yds	2 + clip	40 sec	standing - no artificial support.			
<u>SHOTGUN</u>	1	25 yds	2 Rifled Slugs	30 sec (Load 2 slugs - chamber empty- Time starts - Commence firing.)	Standing - strong shoulder	B-27	Rifled Slug: Hits = strike area on target (10, 9, 7)	
	1	15 yds	5 Double 00 Buckshot	10 sec (Load 5rds Buckshot - chamber empty- Time starts - Commence firing.)	Standing - strong shoulder	B-27	Double 00 Buckshot: Hits in black = 2pts (5rds x 9 pellets/rd x 2pts = 90) Minimum qualifying = 70%	
<u>RIFLE</u>	1	25 yds	1 - 5rd mag	45 sec	Standing - Barricade	B-27	Minimum qualifying = 70%	
	2	25 yds	1 - 5rd mag	45 sec	Standing			
	3	25 yds	1 - 5rd mag	45 sec	Kneeling			
	4	25 yds	1 - 5rd mag	45 sec	Prone			

NOTE: All firing is to be done only at night. Use of night simulation equipment during daylight is not allowable.
Use of site specific sighting devices (i.e., laser, etc.) should be included in the licensee amended security plan for NRC approval.

ENCLOSURE B

Comparative Text

COMPARATIVE TEXT

PART 73--PHYSICAL PROTECTION OF PLANTS AND MATERIALS

8. The authority citation for Part 73 is revised 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 (42 U.S.C. 5841, 5844).

Section 73.37(f) is 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 and sec. 161i, 68 Stat. 949 (42 U.S.C. 2201(i)).

For the purposes of sec. 223, 68 Stat. 958, as amended (42 U.S.C. 2273); §§ 73.21, 73.37(g), and 73.55 are issued under sec. 161b, 68 Stat. 948, as amended (42 U.S.C. 2201(b)); §§ 73.20, 73.24, 73.25, 73.26, 73.27, 73.37, 73.40, 73.45, 73.46, 73.50, 73.55, and 73.67 are issued under sec. 161i, 68 Stat. 949, as amended (42 U.S.C. 2201(i)); and §§ 73.20(c)(1), 73.24(b)(1), 73.26(b)(3), (h)(6), and (k)(4), 73.27(a) and (b), 73.37(f), 73.40(b) and (d), 73.46(g)(6) and (h)(2), 73.50(g)(2), (3)(iii)(B), and (h), 73.55(h)(2) and (4)(iii)(B), 73.70, 73.71, and 73.72 are issued under sec. 161o, 68 Stat. 950, as amended (42 U.S.C. 2201(o)).

9. In Section 73.1, paragraph (a)(2) is revised to read as follows:

§ 73.1 Purpose and scope.

(a) * * *

(2) Theft or diversion of formula quantities of strategic special nuclear material.

(i) A determined, violent, external assault, attack by stealth, or deceptive actions, by a small group with the following attributes, assistance, and equipment:

(A) Well trained (including military training and skills) and dedicated individuals;

(B) Inside assistance [which] that may include a knowledgeable individual who attempts to participate in a passive role (e.g., provide information), an active role (e.g., facilitate entrance and exit, disable alarms and communications, participate in violent attack), or both;

(C) Suitable weapons, up to and including hand-held automatic weapons, equipped with silencers and having effective long-range accuracy;

(D) Hand-carried equipment, including incapacitating agents and explosives for use as tools of entry or for otherwise destroying reactor, facility, transporter, or container integrity or features of the safeguards system; [and]

(E) Land vehicles used for transporting personnel and their hand-carried equipment; and

(F) The ability to operate as two or more teams.

* * * * *

10. In Section 73.2, remove all alphabetical designators and place all definitions in alphabetical sequence; insert new definition, "Tactical

Response Team," in proper alphabetical sequence; and revise paragraph (1) of the definition for "Physical Barrier" to read as follows:

§ 73.2 Definitions.

* * * * *

"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° from the vertical, with an overall height of not less than eight feet, including the barbed topping;

* * * * *

"Tactical Response Team" means the primary response force for each shift which can be identified by a distinctive item of uniform, armed with specified weapons, and whose other duties permit immediate response.

* * * * *

11. In Section 73.46, paragraphs (b)(3)(i), (b)(4), (b)(6), (c)(1), (d)(4)-(6), (d)(9) and (h)(3) are revised and paragraphs (b)(7)-(9) and (i) are added to read as follows:

§ 73.46 Fixed site physical protection systems, subsystems, components, and procedures.

* * * * *

(b) Security organization.

* * * * *

(3) * * *

(i) Written security procedures which document the structure of the security organization and which detail the duties of the Tactical Response Team, guards, watchmen, and other individuals responsible for security[;-and]. The licensee shall retain a copy of the current procedures as a record until the Commission terminates the license for which these procedures were developed and, if any portion of these procedures is superseded, retain the superseded material for three years after each change; and

* * * * *

(4) The licensee [~~shall~~] may not permit an individual to act as a guard, watchman, [~~armed-response-person~~] Tactical Response Team member, or other member of the security organization unless the individual has been trained, equipped, and qualified to perform each assigned security duty in accordance with Appendix B of this part, "General Criteria for Security Personnel." In addition, guards and Tactical Response Team members shall also be trained, equipped, and qualified in accordance with paragraphs (b)(6) and (b)(7) of this section. Upon the request of an authorized representative of the Commission, the licensee shall demonstrate the ability of the physical security personnel, whether licensee or contractor employees, to carry out their assigned duties and responsibilities. Each guard, watchman, [~~armed-response-person~~] Tactical Response Team member, or other member of the security organization, whether a licensee or contractor employee shall requalify in accordance with Appendix B of this part, and for guards and Tactical Response Team members in accordance with paragraph (b)(7) of this section, at least every 12 months. [~~Such-requalifications-shall-be-documented.~~] The licensee shall document the results of the qualification and requalification. The licensee shall

retain the documentation of each qualification and requalification as a record for three years after each qualification and requalification.

* * * * *

(6) Each guard [and-armed-response-force-armament-maintained-onsite] shall [include] be armed with a handgun[s], [shotguns;-and-semiautomatic rifles;] as described in Appendix B [to] of this part. Each Tactical Response Team member shall be armed with a 9mm semiautomatic pistol. All but one member of the Tactical Response Team shall be armed additionally with either a shotgun or semiautomatic rifle, as described in Appendix B to this part. The remaining member of the Tactical Response Team shall carry, as an individually assigned weapon, a rifle of no less caliber than .30 inches or 7.62mm.

(7) In addition to the qualification criteria of Appendix B of this part, guards and Tactical Response Team members shall qualify and requalify annually for night firing with assigned weapons in accordance with Appendix H of this part. The licensee or the licensee's agent shall document the results of weapons qualification and requalification for night firing. The licensee shall retain the documentation of each qualification and requalification as a record for three years after each qualification and requalification.

(8) In addition to the training requirements contained in Appendix B of this part, Tactical Response Team members shall successfully complete training in response tactics. The licensee shall document the completion of training. The licensee shall retain the documentation of training as a record for three years after training is completed.

(9) The licensee shall conduct Tactical Response Team and guard exercises to demonstrate the overall security system effectiveness and

the ability of the security force to perform response and contingency plan responsibilities, and to demonstrate individual skills in assigned team duties. During the first 12-month period following the date specified in paragraph (i)(2)(ii) of this section, an exercise must be carried out at least every three months for each shift, half of which are to be force-on-force. Subsequently, during each 12-month period commencing on the anniversary of the date specified in paragraph (i)(2)(ii) of this section, an exercise must be carried out at least every four months for each shift, one third of which are to be force-on-force. The licensee shall use these exercises to demonstrate its capability to respond to attempts to steal strategic special nuclear material. During each of the 12-month periods, the NRC shall observe one of the force-on-force exercises which demonstrates overall security system performance. The licensee shall notify the NRC of the scheduled exercise 60 days prior to that exercise. The licensee shall document the results of all exercises. The licensee shall retain the documentation of each exercise as a record for three years after each exercise is completed.

(c) Physical barrier subsystems. (1) Vital equipment ~~[shall]~~ must be located only within a vital area, and strategic special nuclear material ~~[shall]~~ must be stored or processed only in a material access area. Both vital areas and material access areas ~~[shall]~~ must be located within a protected area so that access to vital equipment and to strategic special nuclear material requires passage through at least ~~[two]~~ three physical barriers. The perimeter of the protected area must be provided with two separated physical barriers with an intrusion detection system placed between the two. The inner barrier must be positioned and constructed to enhance assessment of penetration attempts and to delay attempts

at unauthorized exit from the protected area. The perimeter of the protected area must also incorporate features and structures which prevent forcible vehicle entry. More than one vital area or material access area may be located within a single protected area.

* * * *

(d) Access control subsystems and procedures.

* * * *

(4)(i) The licensee shall control all points of personnel and vehicle access into a protected area. Identification and search of all individuals for firearms, explosives, and incendiary devices, ~~[shall]~~ must be made and authorization [shall] must be checked at [such] these points, except for Federal, State, and local law enforcement personnel on official duty and United States Department of Energy couriers engaged in the transport of special nuclear material. [need-not-be-searched: licensee-employees-having-an-NRC-or-United-States-Department-of-Energy access-authorization-shall-be-searched-at-least-on-random-basis:] The search function for detection of firearms, explosives, and incendiary devices must be accomplished through the use of detection equipment capable of detecting both firearms and explosives. The individual responsible for the last access control function (controlling admission to the protected area) shall be isolated within a structure with bullet resisting walls, doors, ceiling, floor, and windows.

(ii) When the licensee has cause to suspect that an individual is attempting to introduce firearms, explosives, or incendiary devices into a protected area, the licensee shall conduct a physical pat-down search of that individual. Whenever firearms or explosives detection equipment at a portal is out of service or not operating satisfactorily, the

licensee shall conduct a physical pat-down search of all persons who would otherwise have been subject to search using the equipment.

(5) At the point of personnel and vehicle access into a protected area, all hand-carried packages [shall] except those carried by individuals exempted from personal search under the provisions of paragraph (d)(4)(i) of this part [shall] must be searched for firearms, explosives, and incendiary devices. [~~Except those packages carried by persons having an NRE or BOE access authorization which shall be searched on a random basis when the person carrying them is selected for search.~~]

(6) All packages and material for delivery into [the] a protected area [shall] must be checked for proper identification and authorization and searched [~~on a random basis~~] for firearms, explosives, and incendiary devices prior to admittance into the protected area, except those Commission-approved delivery and inspection activities specifically designated by the licensee to be carried out within material access, vital, or protected areas for reasons of safety, security, or operational necessity.

* * * * *

(9) The licensee shall control all points of personnel and vehicle access to material access areas, vital areas and controlled access areas. At least two armed guards trained in accordance with the provisions contained in paragraph (b)(7) of this section and Appendix B of this part shall be posted at each material access area control point whenever in use. Identification and authorization of personnel and vehicles [shall] must be [made] verified [~~and authorization checked~~] at [such] the material access area control point[s]. Prior to entry into a material access area, packages [shall] must be searched for firearms, explosives, and incendiary devices. All vehicles, materials and packages, including

trash, wastes, tools and equipment exiting from a material access area [shaft] must be searched for concealed strategic special nuclear material by a team of at least two individuals who are not authorized access to that material access area. Each individual exiting a material access area shall undergo at least two separate searches for concealed strategic special nuclear material. For individuals exiting an area that contains only alloyed or encapsulated strategic special nuclear material, the second search may be conducted in a random manner.

* * * *

(h) Contingency and response plans and procedures.

* * * *

(3) A Tactical Response Team consisting of a minimum of five (5) [guards-shaft] members must be available at the facility to fulfill assessment and response requirements. In addition, a force of guards or armed response personnel also [shaft] must be available to provide assistance as necessary. The size and availability of the additional force [shaft] must be determined on the basis of site-specific considerations that could affect the ability of the total onsite response force to engage and impede the adversary force until offsite assistance arrives. The [reason] rationale for [determining] the total number and availability of onsite armed response personnel [shaft] must be included in the physical protection plans submitted to the Commission for approval.

* * * *

(i) Implementation schedule for revisions to physical protection plans. (1) By (180 days after the effective date of these amendments) each licensee shall submit a revised fixed site physical protection plan to the Commission for approval. The revised plan must describe how the

licensee will comply with the requirements of paragraphs (b)(3)(i), (b)(4), (b)(6), (b)(7), (b)(8), (b)(9), (c)(1), (d)(4), (d)(5), (d)(6), (d)(9), and (h)(3) of this section. Revised plans must be mailed to the Director, Division of Safeguards and Transportation, U.S. Nuclear Regulatory Commission, Washington, DC 20555.

(2) Each licensee shall carry out the new commitments in the revised plan in accordance with the following schedule:

(i) Commencing 30 days after Commission approval of the revised plan for commitments related to paragraphs (b)(3)(i), (d)(4), (d)(5), (d)(6) and (d)(9) of this section.

(ii) Commencing 60 days after Commission approval of the revised plan for commitments related to paragraphs (b)(4), (b)(6), (b)(7), (b)(8), (b)(9) and (h)(3) of this section.

(iii) Commencing 365 days after Commission approval of the revised plan for commitments related to paragraph (c)(1) of this section.

12. A new Appendix H is added to read as follows:

[See attached appendix.]

APPENDIX H
MINIMUM QUALIFICATION CRITERIA FOR NIGHT FIRING

WEAPON	STAGE	DISTANCE	NO. ROUNDS	TIMING	POSITION	TARGET	SCORING	LIGHTING
<u>HANDGUN</u>								For all courses:
Revolver	1	7 yds	12	35 sec	standing - no artificial support.	B-27	Minimum qualifying = 70%	.2 footcandles at center mass of target area.
	2	15 yds	12	45 sec	standing - no artificial support.			
Semi-automatic	1	7 yds	2 + clip	30 sec	standing - no artificial support.	B-27	Minimum qualifying = 70%	
	2	15 yds	2 + clip	40 sec	standing - no artificial support.			
<u>SHOTGUN</u>	1	25 yds	2 Rifled Slugs	30 sec (Load 2 slugs - chamber empty- Time starts - Commence firing.)	Standing - strong shoulder	B-27	Rifled Slug: Hits = strike area on target (10, 9, 7)	
	1	15 yds	5 Double 00 Buckshot	10 sec (Load 5rds Buckshot - chamber empty- Time starts - Commence firing.)	Standing - strong shoulder	B-27	Double 00 Buckshot: Hits in black = 2pts (5rds x 9 pellets/rd x 2pts = 90) Minimum qualifying = 70%	
<u>RIFLE</u>	1	25 yds	1 - 5rd mag	45 sec	Standing - Barricade	B-27	Minimum qualifying = 70%	
	2	25 yds	1 - 5rd mag	45 sec	Standing			
	3	25 yds	1 - 5rd mag	45 sec	Kneeling			
	4	25 yds	1 - 5rd mag	45 sec	Prone			

NOTE: All firing is to be done only at night. Use of night-simulation equipment during daylight is not allowable.
Use of site specific sighting devices (i.e., laser, etc.) should be included in the licensee amended security plan for NRC approval.

ENCLOSURE C

Analysis of Alternatives to a Second Fence

ANALYSIS OF ALTERNATIVES TO A SECOND FENCE

General

In a Staff Requirements memorandum dated December 7, 1987 the Commission approved proposed changes to physical protection requirements for NRC-licensed fuel facilities and directed the staff to undertake several additional actions. One of these was to solicit comments on the security benefits of a second fence and suggestions for cost effective alternatives that might achieve protection of the SSNM comparable to that at DOE facilities. The staff was also directed to analyze and report as part of the final rulemaking package the security benefits of a second fence and to report alternatives costing \$1 million or less that would provide comparable protection.

Public Comments

Public comments on the proposed amendments did not include any that were specific to the security benefits of a second fence. Neither were there any public comments regarding cost-effective alternatives for the second fence. One responder offered an improved fence barrier which he represents commercially. This fence barrier is considerably higher as well as more expensive than the standard fence barrier cited in the proposed amendments.

Security Benefits of Second Personnel Fence

The primary security function of the second fence is to provide a temporary delay on the movement of individuals from the point where they have triggered an alarm of the intrusion detection system. By delaying such movement there is an increased assurance that guards performing remote assessment of alarms can observe individuals at the time they are making an intrusion and recognize them as being unauthorized. This delay may also allow the guards making the assessment to initiate an immediate armed response from their tower guard posts. A secondary benefit is that the second fence prevents an insider from throwing special nuclear material from inside the facility to an accomplice outside. Finally, the second fence prevents authorized personnel within the facility from inadvertently crossing into a detector's zone and triggering a false alarm.

Alternatives

Detection and assessment systems at the facility perimeter provide security decision makers with information regarding the intrusion which is essential to determining whether to launch a response. If alarms are not immediately identified as indicating an unauthorized entry, the area that has to be searched for indicators of intrusion becomes very large with the passage of time, and negative searches are inconclusive regarding whether or not an intrusion actually took place. The detection system, and hence the possibility of detection, should be at the perimeter boundary to provide the response force as much time as possible before the intruders can reach the desirable material. If the area protected by the alarm and barrier system is reduced, there is less time and space for the protective force to intervene although the area to be searched for indicators of intrusion would be smaller.

If covert entry into a facility cannot be detected with acceptable assurance, the material must be protected by measures that are effective in spite of the detection deficiencies. For material which is located in vaults this protection could take the form of equipment or devices which would provide entry delays that are longer than guard response times to the vaults. For material located in work areas long delays cannot be provided although active or passive defense techniques are possible, at least in principle. One possibility is the use of techniques that would be activated automatically by attempts at intrusion or by personnel in the work area. Examples are cold smoke, noxious fumes, incapacitating gases and foam which render it difficult to approach the material. The use of such agents where personnel are working, however, raises serious problems in administration, e.g. testing, liability and false alarm consequences. Accordingly, their use is not considered to be a legitimate option.

Armed escort of the material at all times while outside of a vault is possible and would be similar to what is required during transportation between facilities. Alternatively, instead of escorting the SSNM while it is outside of a vault, it would be possible to provide an increased guard force continuously patrolling each sector of the perimeter and responding directly to each indication of an intrusion. This alternative could be implemented by modifying the intrusion detection system at the perimeter to trigger local as well as a remote alarms. If local alarms were provided, response to an intrusion could be rapid enough to oppose adversaries at or near the perimeter. One undesirable feature of using local guards to assess alarms would be that the patrolling guards might be silently eliminated. Another problem is that of maintaining adequate vigilance on the part of the guards.

If the determination is made that there are no viable alternatives to a barrier of some type, the question of alternatives becomes one of determining the most cost effective barrier available. Among barriers other than fences which were considered are two that are made of rolls of wire. A barrier of General Purpose Barbed Tape Obstacle (GPBTO) comprised of various numbers of rolls is one example. It is anticipated to be as effective as a fence, possibly more so, though the cost is higher. Barbed Tape Concertina (BTC) is a second obstacle material that is somewhat more effective than a fence, though again at a higher cost. Another barrier that is more effective than the standard eight foot fence at slightly higher cost is a twelve foot fence. This barrier appears appropriate for some locations where the nominal 20 foot clear zone between barriers cannot be provided. The costs of GPBTO, BTC, 12 foot and 8 foot fences are given in the accompanying table as well as the cost of a modest increase in guard forces.

On the basis of the foregoing information, it appears that the eight foot fence is the most cost effective alternative for assuring that potential intruders are delayed long enough to be identified as intruders.

TEN YEAR COST OF BARRIER ALTERNATIVES FOR A 5,000 FOOT PERIMETER SITE
(IN THOUSANDS OF DOLLARS)

<u>BARRIER</u>	<u>INITIAL COST</u>	<u>ANNUAL OPERATIONS AND MAINTENANCE</u>	<u>10 YEAR TOTAL COST</u>
STANDARD 8' FENCE @ \$15 PER FOOT	\$ 75	0	\$75
12' FENCE @ \$20 PER FOOT	\$100	0	\$100
GENERAL PURPOSE BARBED TAPE OBSTACLE 3 MOUNDS OF 6 ROLLS @ 104.40 PER FOOT	\$522	\$26 (5% annual replacement)	\$782
BARBED TAPE CONCERTINA 10 HORIZONTAL ROLLS @ \$24 PER FOOT	\$120	\$12 (10% annual replacement)	\$240
FOUR PATROLS COVERING 1250' OF PERIMETER EACH (15-25 total guards)	\$75 to \$215	\$350 to \$1,200	\$3,575 to \$12,215

ENCLOSURE D

Environmental Assessment.

ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT
For Amendments to 10 CFR 73

Safeguards Requirements for Fuel Facilities Possessing Formula Quantities of
Strategic Special Nuclear Material (SSNM)

The Commission has determined, under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in 10 CFR Part 51, that promulgation of the amendments to 10 CFR Part 73 will not have a significant effect on the quality of the human environment and that, therefore, an environmental impact statement is not required. This determination is based on an environmental assessment and finding of no significant impact performed in accordance with the procedures and criteria in Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions," as published in the Federal Register, March 12, 1984.

Part 51 is the NRC's regulation for assuring appropriate environmental consideration of licensing and regulatory actions. Generally, under Part 51 any licensing or regulatory action will fall within 1 of 3 classes. One class of actions consists of those which require an environmental impact statement. The criteria for and identification of this class of actions are given in §51.20. The class of actions includes matters such as issuance of a construction permit or operating license for a nuclear power plant. Another class of actions consists of those eligible for categorical exclusion following a Commission declaration that the category of actions does not individually or cumulatively have a significant effect on the human environment. The criteria for and identification of licensing and regulatory actions eligible for categorical exclusion are given in §51.22. Amendments to Commission

regulations which are corrective, or of a minor or nonpolicy nature and do not substantially modify existing regulations, fall within this second class of actions.

The third class of licensing and regulatory actions, for purposes of environmental considerations, comprises those actions which are neither identified in §51.20 as requiring an environmental impact statement nor identified in §51.22 as qualifying for categorical exclusion from preparation of an environmental impact statement or assessment. The criteria for and identification of licensing and regulatory actions requiring environmental assessments are given in §51.21. The proposed amendments to 10 CFR Part 73 regarding safeguards requirements for fuel facilities possessing formula quantities of SSNM satisfies the requirement of §51.21 and, accordingly, the assessment below has been prepared.

The required contents of an environmental assessment, set out in §51.30, are as follows:

§51.30 Environmental assessment.

- (a) An environmental assessment shall identify the proposed action and include:
 - (1) A brief discussion of:
 - (i) The need for the proposed action;
 - (ii) Alternatives as required by section 102(2)(E) of NEPA;
 - (iii) The environmental impacts of the proposed action and alternatives as appropriate; and

- (2) A list of agencies and persons consulted, and identification of sources used.

The following comments respond to the specific requirements of §51.30.

Need for Action

The rulemaking amends Part 73 of the Commission's regulations, "Physical Protection of Plants and Materials." The intent of this rulemaking is to provide greater assurance that, at fuel facilities possessing formula quantities of SSNM, the physical protection measures can protect against the design basis threat. The primary subjects of the amendments involve (1) security system performance evaluation through tactical response team exercises, (2) night firing qualification for guards using all assigned weapons, (3) search of 100 percent of entering personnel and packages, (4) posting of armed guards at material access area control points, (5) providing two separated protected area barriers, and (6) revision of the design basis threat applicable to theft of SSNM to include adversary use of a land vehicle and the measures required to prevent forcible vehicle entry into the protected area. The need for these improved safeguards requirements is based on findings made in SECY-87-28 (CNSI), "NRC/DOE Comparability Review Team Findings of Safeguards Programs at Fuel Facilities."

The amendments to Part 73 will directly affect four current fuel facility licensees and any future applicants for fuel facility licenses involving possession of formula quantities of SSNM. Of the current licensees -- GA Technologies Inc., La Jolla, California; Nuclear Fuel Systems Erwin, Tennessee; Babcock & Wilcox, Lynchburg, Virginia; and United

Nuclear Corporation, Uncasville, Connecticut -- only the first is a commercially oriented facility. The GA facility, which provides fuel for the only high enriched uranium commercial reactor in the country, is currently in a storage only mode.

Alternatives

Section 102(2)(E) of NEPA provides that agencies of the Federal Government shall "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." The objective of these amendments is to provide greater assurance that the safeguards measures at these specific fuel facilities are capable of providing adequate protection against a revised design basis threat. This objective can be achieved by maintaining fully adequate and essentially equivalent safeguards systems in licensed and license-exempt sectors. The changes in safeguards requirements proposed in this rulemaking have been prompted by determinations, based upon a recent classified (CNSI) study (SECY-87-28), which compared NRC's security requirements with the Department of Energy's (DOE's) recently upgraded security systems. This classified study also considered and rejected the efficacy of other changes in safeguards requirements in light of their value in providing "comparability." No appropriate alternatives were identified beyond the six measures addressed in the proposed amendments which would accomplish the desired comparability in safeguards requirements between licensed and license-exempt facilities.

Environmental Impacts

The amendments will affect neither the safety of operation nor the routine release of or exposure to radioactivity from the fuel facilities possessing formula quantities of SSNM. The amendments are only intended to provide greater protection against the design basis threat and thus reduce the risks of theft of strategic special nuclear material from these facilities. Exposures of the public to radiation or radioactive materials will not be affected.

The primary intent of the amendments is to improve the physical protection of SSNM. Six measures are proposed: (1) initiation of security system performance evaluations through tactical response team exercises, (2) the night firing qualification of guards using all assigned weapons, (3) 100 percent search of entering personnel and packages, (4) posting of armed guards at material access area control points, (5) provision of two separate protected area personnel barriers, and (6) the installation of measures to prevent forcible vehicle entry into protected areas. Of these six measures, measures (1), (2), and (4) have no identifiable environmental impacts. Measures (2), (3), and (4) have been imposed on current fuel facility licensees through license conditions.

The 100 percent search of entering personnel and packages requires installation of additional walk-through detection equipment which require construction activities to expand or modify the existing building in which this equipment is located. The Commission previously directed that implementation of this requirement be accomplished through appropriate license amendments. The requirement regarding protected area personnel barriers necessitates construction, on the licensee's property, of a second barrier (e.g. fence)

within the current protected area. Finally, the installation of measures to prevent forcible vehicle entry will likely require the deployment of vehicle barriers which would be installed on the licensee's property at or near the protected area boundary at points accessible to vehicles. These construction activities at potentially four current licensee sites and at any sites of future fuel facility licensees who require possession of formula quantities of SSNM are considered minor in nature and support a finding that the amendments involve no significant environmental impact.

During development of the amendments, the Commission staff has consulted with the affected licensees regarding the implementation of the three measures imposed through license amendment.

Determination of Need for Environmental Impact Statement

Section 51.31 provides that upon completion of an environmental assessment, the appropriate NRC staff director will determine whether to prepare an environmental impact statement or finding of no significant impact on the proposed action. The Executive Director for Operations has determined that the environmental assessment adequately supports a finding that the amendment will have no significant environmental impact. Accordingly, the Commission has determined not to prepare an environmental impact statement for this rulemaking. The amendments will not significantly affect safe operation of the affected facilities nor the routine release of or exposure to radioactivity from the facilities.

ENCLOSURE E

Regulatory Analysis

REGULATORY ANALYSIS

SAFEGUARDS REQUIREMENTS FOR FUEL FACILITIES
POSSESSING FORMULA QUANTITIES OF STRATEGIC
SPECIAL NUCLEAR MATERIAL

10 CFR 73

EXECUTIVE SUMMARY

This regulatory analysis describes the impacts of proposed reforms to the safeguards requirements of fuel facilities possessing formula quantities of strategic special nuclear material. These changes will ensure that weapons-usable material will receive comparable protection, both in the licensed and license-exempt sectors.

The estimated cost impacts to industry of implementing the proposed reforms at four licensees is \$4.2 million with annual operating costs of \$2.1 million per year. The breakdown of the cost in thousands of dollars is as follows:

Topic	Implementation Cost (thousands of dollars)	Annual Operating Cost (thousands of dollars)
Tactical Response Team Exercises	317	612
Nine-Millimeter Handguns	234	(a)
Heavy-Caliber Rifle	39	14
Night Qualification	183	183
Entry Search	1,356	720
Armed Guards at Material Access Areas	39	513
Double Physical Barriers	1,505	(a)
Revised Design Basis Threat	531	20

(a) No additional costs are expected to result from the proposed amendments.

The expected cost impacts to the NRC are expected to be \$321,000 for implementation and \$8,700/year for annual operation.

CONTENTS

	<u>PAGE</u>
SUMMARY.....	iii
1. INTRODUCTION.....	1
1.1 Description.....	1
1.2 Background And Justification Of Proposed Action.....	2
1.3 Affected NRC Licensees.....	2
2. PROBLEM DEFINITION.....	4
2.1 Proposed Actions.....	4
2.1.1 Guard and Tactical Response Team Exercises.....	4
2.1.2 Weapons Standardization and Night Qualification.....	4
2.1.3 Personnel and Parcel Search.....	5
2.1.4 Armed Guards at Material Access Area Control Points..	5
2.1.5 Physical Barriers at the Protected Area Perimeter....	5
2.1.6 Revised Design Basis Threat.....	6
2.2 Statutory Considerations and Alternatives.....	6
2.2.1 Nuclear Regulatory Commission Authority.....	6
2.2.2 Need for Environmental Assessment.....	7
2.2.3 Relationship to Other Existing or Proposed Regulations.....	7
2.2.4 Alternatives.....	7
3. CONSEQUENCES.....	8
3.1 Costs and Benefits of Industry Implementation and Operation.	8
3.1.1 Guard and Tactical Response Team Exercises.....	9
3.1.2 Weapons Standardization and Night Qualification.....	12
3.1.3 Personnel and Parcel Search.....	17
3.1.4 Armed Guards at Material Access Area Control Points..	19
3.1.5 Double Physical Barriers at Protected Area Perimeter.	22
3.1.6 Revised Design Basis Threat.....	25
3.2 Impacts on the NRC.....	29
3.3 Impact on Others.....	30
4. REFERENCES.....	31
5. TABLES	
1. Initial TRT Training and Exercise Costs, Dollars.....	10
2. Annual TRT Training and Exercise Costs, Dollars.....	12
3. 9mm Pistol Implementation Costs, Dollars.....	14
4. Heavy Caliber Rifle Implementation Costs, Dollars.....	15
5. Night Firing and Qualification Costs, Dollars.....	16
6. Implementation Costs For 100% Search, Dollars.....	19

CONTENTS (Continued)

5.	TABLES (Continued)	<u>PAGE</u>
7.	Annual Operating Costs for 100% Search, Dollars.....	21
8.	Armed Guards at MAA Control Points, Cost, Dollars.....	23
9.	Fence Costs, Dollars.....	24
10.	Additional Physical Barrier Implementation Costs, Dollars.....	26
11.	Cost to Protect Against the Revised Design Basis Threat, Dollars.	28
12.	Impacts on NRC From Rule Implementation, Dollars.....	30
6.	APPENDIX	
	APPENDIX A.....	A-1
	A-1 Reference Costs.....	A-1
	A-2 Concertina Barrier.....	A-3
	A-3 Razor Tape Barrier.....	A-5
	A-4 Additional Guards.....	A-6
7.	TABLES	
	A-1 Estimated Alternate Physical Barrier Costs.....	A-1
	A-2 Reference Fencing Costs.....	A-2
	A-3 Concertina Barrier Costs.....	A-4
	A-4 Razor Tape Barrier Costs.....	A-6
	A-5 Training Armed Guards for Site Perimeter.....	A-8
	A-6 Annual Costs for Armed Guards at Site Perimeter.....	A-8

1. INTRODUCTION

The United States government has established that strategically significant quantities of weapons-usable nuclear material, whether in the licensed or license-exempt sector, should receive essentially comparable protection. Toward this end, the U.S. Nuclear Regulatory Commission (NRC) is proposing amendments to regulations governing protection of fuel facilities possessing formula quantities of strategic special nuclear material (SSNM).

1.1 Description

The following upgrades in physical protection and security personnel performance regulations are being considered:

- security system performance evaluation through Tactical Response Team (TRT) exercises
- use of 9-mm semiautomatic handguns for all TRT personnel
- equipping each TRT with a rifle of at least 0.30 caliber (or 7.62 mm)
- night firing qualification for security personnel using all assigned weapons
- 100 percent search of entering personnel and packages
- posting of armed guards at material access area (MAA) control points
- construction of two separate protected area fences
- revision of the design basis threat at these fuel facilities, to include the use of land vehicles by intruders and implementation of measures to prevent forcible vehicle entry into the protected area.

These amendments would increase assurance that physical protection and security forces are capable of protection against the design basis threat. These changes would fulfill the NRC's stated goal of equivalent levels of security at comparable U.S. Department of Energy (DOE)-controlled fuel facilities and NRC-regulated fuel installations.

1.2 Background and Justification of Proposed Action

The goal of comparable protection was established in National Security Decision Memorandum (NSDM) 254 (April 27, 1987) (see Ref. 1). The goal was also voiced in communications by the National Security Council (NSC), DOE, the Department of Defense (DoD), and the NRC.

In conformance with NSDM 254, comparability reviews were conducted at DOE- and NRC-licensed facilities by a joint NRC/DOE comparability assessment team. These reviews indicated that DOE has placed increased emphasis on guard

weaponry, training, and tactical response exercises and has upgraded some physical security measures. Reviews of NRC safeguards event reports, regulatory effectiveness reviews, licensing actions, and inspection reports indicate a need to further enhance physical protection measures at NRC-licensed fuel facilities.

To maintain comparability with DOE, and to support these internal NRC security reviews, the NRC directed its staff to amend the physical protection regulations for fuel facilities possessing formula quantities of SSNM. These amendments, described in Chapter 2, would provide assurances that security systems and security force capabilities are strengthened and made more uniform.

Chapter 3 explains the specific consequences of the proposed rule changes for affected industrial facilities and the NRC.

1.3 Affected NRC Licensees

The proposed amendments to 10 CFR 73 will potentially impact four NRC licensees. The four facilities are Babcock and Wilcox, Lynchburg, Virginia; United Nuclear Corporation, Uncasville, Connecticut; Nuclear Fuel Services, Erwin, Tennessee; and GA Technologies, San Diego, California. Of these, GA is currently not operating but may operate in the future.

2. PROBLEM DEFINITION

Section 2.1 of this chapter first offers a detailed discussion of the proposed actions. Alternatives to implementation of these changes are discussed in Section 2.2.

2.1 Proposed Actions

Title 10 of the Code of Federal Regulations, Part 73, deals with the security and protection of SSNM. The amendments discussed in this section are being proposed to improve security at NRC licensed fuel facilities possessing formula quantities of SSNM.

2.1.1 Guard and Tactical Response Team Exercises

Quarterly and annual exercises for guards and TRTs are proposed for affected locations. Quarterly exercises could last as little as 1 to 3 hours, including pre-briefing and post-action activities. All shifts are required to participate in at least one exercise per quarter, and the four exercises should cumulatively represent the typical conditions encountered during a 24-hour day. The annual exercise could fulfill one of the quarterly exercise requirements and would be observed by NRC representatives.

The exercises are intended to demonstrate the level of readiness and training of guards and TRT members. By testing the TRTs, these exercises would indicate if additional training is needed. In addition, the use of tactical exercises would show if physical security system improvements are required.

2.1.2 Weapons Standardization and Night Qualification

While revolvers could be used by guards performing duties other than those of a TRT member, a 9-mm semiautomatic pistol is proposed for each TRT member. This action is based upon the recognition that the 9-mm pistol is more effective than revolvers, which fire slower and have lower round capacities. Each TRT member would continue training with the standard .223-caliber semiautomatic assault rifle and an assault shotgun. In addition, at least one member of the TRT would be trained and armed with a heavy rifle, minimum .30-caliber (or 7.62-mm), to provide additional effectiveness against heavily armed adversaries in vehicles. These requirements for improved weapons are consistent with recent nationwide police upgrades, based upon increased encounters with adversaries using sophisticated weapons. Because of the need to prepare for night responses, courses for night firing of all weapons classes would be mandated. Also, all personnel would requalify annually with all assigned weapons, demonstrating both night firing ability and familiarity with weapons.

2.1.3 Personnel and Parcel Search

Current regulations require only random searches of personnel and their hand-carried packages, as long as the individual is an employee with NRC or DOE access authorization. Searches of incoming parcels, such as mail and other packages and materials that are not hand-carried, are also random. The proposed amendments would require that all entering personnel and packages be searched for weapons and explosives. Delivery and inspection activities

specifically designated by the licensee and approved by the NRC for reasons of safety, security, or operational necessity are presently exempt and will remain exempt. Federal, State, and local law enforcement personnel on official duty are exempted from search requirements.

2.1.4 Armed Guards at MAA Control Points

As part of their overall security program some facilities have stationed armed guards at all MAA control points, in place of unarmed watchmen. The proposed amendments would require that all facilities adopt those measures, manning all MAA control points with armed guards, increasing deterrence and enhancing responsiveness to adversary attack.

2.1.5 Physical Barriers at the Protected Area Perimeter

All fuel facilities possessing formula quantities of SSNM would be required to have two physical personnel barriers at the protected area perimeter. These barriers would be constructed high enough and separated by enough distance to allow security personnel time to assess attempted penetration and to delay attempts at unauthorized exit from the protected area. Installation of intrusion detection devices, assessment aids, and any other monitoring equipment that might be appropriate would be provided for. A guidance document on the two physical barriers is being developed by the NRC staff and will be issued separately.

2.1.6 Revised Design Basis Threat

The design basis threat contained in 10 CFR Subsection 73.1(a)(2) would be amended to include use of land vehicles by potential adversaries to breach perimeter barriers and to transport personnel and their equipment. The NRC considers the modification of the design basis threat to be a necessary measure reflecting the possible use of land vehicles by potential adversaries. The amended threat statement does not include use of aircraft, watercraft, special purpose land vehicles, or the transportation of large amounts of explosives onto or near the site.

Installation of barriers at or near the protected area boundary is an effective countermeasure to the change in the design basis threat. Information on types of structures and materials demonstrated to be effective in denying entry to wheeled vehicles may be found in NUREG/CR-4250 (see Ref. 2) or The Barrier Technology Handbook (Sand 77-0777) (see Ref. 3).

2.2 Statutory Considerations and Alternatives

2.2.1 Nuclear Regulatory Commission Authority

The Atomic Energy Act of 1954, as amended, provides authority for the NRC to prescribe regulations designed to protect the public health and minimize danger to life or property, as described in Subsection 161(b).

2.2.2 Need for Environmental Assessment

The Commission has determined, under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in 10 CFR Part 51, that

promulgation of the proposed amendment of 10 CFR Part 73 will not have a significant effect on the quality of the human environment and that, therefore, an environmental impact statement is not required. This determination is based on an environmental assessment and finding of no significant impact, performed in accordance with the procedures and criteria in Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions," as published in the Federal Register on March 12, 1984.

2.2.3 Relationship to Other Existing or Proposed Regulations

There are no apparent potential conflicts or overlaps with other NRC regulations or policies nor with other agencies' regulations or policies. These regulations are being amended to improve the NRC's program for the protection of weapons-usable nuclear material at fuel cycle facilities possessing formula quantities of SSNM and to maintain comparability with the DOE's recently upgraded program.

2.2.4 Alternatives

An alternative to these rule changes would be to issue license conditions, orders or policy statements. However, it is the policy of the NRC to regulate the industry through rulemaking in order to allow public participation. Therefore, the NRC has chosen to amend the existing regulations and to issue further guidance, as appropriate. For some elements of this proposed rule, there are several options for the actual method of implementation. Alternatives for specific components of the rule are discussed in Section 3.

3. CONSEQUENCES

The NRC's primary concern is to regulate the nuclear industry so as to promote the common defense and security and to protect the health and safety of the public and of the workers employed in the nuclear industry. In the context of this analysis, promoting the common defense and security includes providing assurance that weapons-usable material cannot be diverted or stolen. This chapter discusses the expected costs and benefits associated with adopting proposed modifications intended to provide that assurance. These impacts are assessed as differentials, using the current requirements as a baseline.

The most significant effects are expected to be those associated with industrial implementation and operation costs, as well as development and implementation costs to the NRC. The impacts on operators of fuel facilities are discussed in Section 3.1; on the NRC, in Section 3.2; and on others, in Section 3.3.

3.1 Costs and Benefits of Industry Implementation and Operation

This section details the costs that are expected to be incurred by industry to implement the proposed measures. Such costs cover purchase and installation of equipment, additional training, new facilities, etc. This section also discusses the costs involved with operating the systems once they are in place; and expenses resulting from extra labor, repairs and maintenance, and purchase of supplies, etc.

Visits to the three operating licensees were conducted to understand site-specific conditions. In cases where the licensees identified hardware currently in use, the costs of similar materials were used. In the case of construction and labor costs, the cost of prior work was factored into the cost estimates shown here. Other construction or equipment costs presented in this section were derived using prices supplied by manufacturers through catalogs or telephone quotes, or were calculated using standard cost-reference manuals such as Means Construction Cost Data (see Ref. 4) or Richardson's Rapid Cost Estimation Manual (see Ref. 5). In addition, each licensee provided estimates of the labor hours required to implement and operate each provision of the amendments. In those cases where personnel were required to perform tasks in addition to their regular duties, overtime salaries were applied. All cost estimates shown in this chapter are given in calendar year 1988 dollars (Fiscal Year 1989 dollars).

3.1.1 Guard and Tactical Response Team Exercises

The NRC does not currently require performance evaluations of security personnel through response exercises. However, the amendments of 10 CFR Part 73 would require each site to conduct quarterly tactical training exercises for all shifts, including an annual, NRC-observed exercise for on-duty security personnel. These performance tests are among the best means to determine the response and delay times essential to a successful defense, as well as to assure that the overall plant security system will adequately meet the design basis threat. The NRC is providing guidance to licensees for tactical training, as well as scenarios and evaluations useful in conducting drills. Information on conducting guard and tactical response team exercises is provided in the document, NUREG/CR 5081 Tactical Exercise Planning Handbook (Telfair, Moul, Klingelhoef and Leonard, 1988) (see Ref. 6), and NUREG/CR 5072, Tactical Exercise Reference Manual (Telfair et al. 1988) (see Ref. 7).

The cost for the TRT training and the tactical response team exercises is shown in Table 1. For purposes of estimating costs, it was assumed that licensees would use a laser engagement system such as Multiple Integrated Laser Engagement Systems (MILES). The total estimated cost to completely outfit and initially train TRTs and familiarize the guards with MILES equipment for all four locations is \$316,916. The estimated annual cost for the first year is \$611,599 per year to provide training for the TRTs, to conduct the exercises and to provide equipment for these exercises. For the second and subsequent years the annual cost is \$405,803.

The initial costs are those incurred for general training and familiarization with the MILES equipment for all guards; additional training in tactics for TRT personnel; rental of MILES equipment for familiarization and an initial training exercise; purchase of blank ammunition for reserve and familiarization; purchase of radios and other miscellaneous equipment; and conduct of an initial training exercise.

For the first year, the annual costs are assumed to be those incurred for quarterly exercises for each shift, including one exercise to be observed by the NRC. For purposes of this estimate, two of the quarterly exercises would be performed with MILES equipment and two without. Therefore, six quarterly exercises would be performed with MILES equipment and would require an adversary team and a shadow force. The primary difference between the annual and the quarterly exercises with the MILES equipment is the longer duration of the exercise window for the annual exercise. For exercises involving MILES equipment, a shadow force will be drawn from an off-duty shift to cover actual security requirements. An adversary team will be determined by the exercise scenario which takes into account the design basis threat. Each exercise would involve an exercise coordinator, exercise evaluators, and exercise controllers. For quarterly non force-on-force exercises, the shadow force would not be required. For the second year, the exercises would be performed once every four months, with one of the exercises being observed by the NRC. The number of exercises would be nine per year. For the purpose of the cost estimation, three (one third), of the exercises are assumed to be conducted with MILES equipment.

Annual costs for the TRT training allow for 40 hours per person. The actual training will vary from site to site and will depend on the ability of the site to integrate the TRT training with other duties of patrol. Training for TRT personnel would address tactics, weapons proficiency and physical conditioning. In addition, adversaries for the exercises would generally be selected from TRT personnel and would receive additional training specific to the adversary roles and tactics. Practice firing for MILES equipment would be conducted twice a year on a volunteer basis for all guards. The practice with the MILES equipment is assumed to coincide with the rental of the MILES equipment for the exercises.

3.1.2 Weapons Standardization and Night Qualification

Under the proposed regulations, each TRT member would train with the 9mm semiautomatic pistol, a standard .223-caliber semi-automatic assault rifle, or an assault shotgun. In addition, one member of the team would be armed with a heavy rifle, at least .30-caliber (7.62-mm), providing additional effectiveness

Table 1. Initial TRT training and exercise costs, dollars

Item	B&W	UNC	NFS	GA
MILES Rental Cost	16,000	16,000	16,000	16,000
Ammunition and Pyrotechnics	3,200	3,200	3,200	3,200
Equipment Purchases	4,800	4,800	4,800	4,800
Range Rental	1,750	1,000	1,000	1,250
Initial Guard Training:				
<u>No. of Personnel</u>	115	63	63	75
<u>Hourly Wage Rate</u> (Average)	X 19.31	X 21.07	X 15.12	X 32.03
<u>Hours Training</u>	X 8	X 8	X 8	X 8
Total Labor Cost	17,765	10,619	7,620	19,218
TRT Initial Training:				
<u>No. of Personnel</u>	25	30	30	25
<u>Hourly Wage Rate</u>	X 19.31	X 21.07	X 15.12	X 32.03
<u>Hours Training</u>	X 40	X 40	X 40	X 40
Total Labor Cost	19,310	25,284	18,144	32,030
Instruction & Supervision	2,088	1,960	1,960	2,808
Planning and Control	3,840	4,469	4,467	5,928
Adversary Training	4,200	4,700	3,400	7,200
Initial Exercise:				
<u>No. of Personnel</u>	18	18	18	18
<u>Hourly Wage Rate</u>	X 19.31	X 21.07	X 15.12	X 32.03
<u>Hours</u>	X 12	X 12	X 12	X 12
Total Labor Cost	4,171	4,551	3,266	6,918
TOTAL	\$77,124	\$76,583	\$63,857	\$99,352

against heavily armed adversaries in vehicles. The proposed regulations also require that all guards and the members of the TRT complete an annual night firing course using assigned weapons and that the licensees maintain scoring records.

Table 2. Annual TRT training and exercise costs, dollars

Item	B&W	UNC	NFS	GA
Equipment Rental	96,000	96,000	96,000	96,000
Second year	48,000	48,000	48,000	48,000
Ammunition	850	850	850	850
Range Rental	1,500	1,500	1,500	1,500
Annual TRT Training:				
No. of Personnel	25	30	30	25
Hourly Wage Rate	x 19.31	x 21.07	x 15.12	x 32.03
Hours Training per TRT	x 40	x 40	x 40	x 40
Total Labor Cost	19,310	25,284	18,144	32,030
Instruction & Supervision	3,907	4,547	4,547	6,032
Quarterly Exercise w/MILES				
No. of Personnel	18	18	18	18
Hourly Wage Rate	x 19.31	x 21.07	x 15.12	x 32.03
Hours per Exercise	x 6	x 6	x 6	x 6
Total Labor Cost	2,085	2,276	1,633	3,459
Instruction & Supervision	250	250	308	275
Planning and Control	440	492	353	747
Total per Exercise	2,775	3,018	2,294	4,481
Exercise w/o MILES				
No. of Personnel	6	6	6	6
Hourly Wage Rate	x 19.31	x 21.07	x 15.12	x 32.03
Hours per Exercise	x 4	x 4	x 4	x 4
Labor Cost	463	506	363	769
Planning and Control	132	148	156	208
Total per Exercise	595	654	519	977

Table 2. (Continued)

Item	B&W	UNC	NFS	GA
Annual Observed Exercise:				
No. of Personnel	18	18	18	18
Hourly Wage Rate	x 19.31	x 21.07	x 15.12	x 32.03
Hours	x 12	x 12	x 12	x 12
Labor Cost/Exercise	4,171	4,551	3,266	6,918
Instruction & Supervision	1,500	1,500	1,850	1,650
Planning and Control	1,320	1,475	1,060	2,242
Total	6,991	7,525	6,167	10,810
TOTAL First Year (12 exercises)	\$144,871	\$153,191	\$139,599	\$173,938
TOTAL Second Year (9 exercises)	\$ 95,537	\$ 96,137	\$ 90,824	\$123,305

3.1.2.1 Weaponry

The affected facilities have guard forces with members assigned to respond to emergencies during a shift. The guard forces are equipped with assault rifles, shotguns, revolvers and a sniper rifle. To implement the proposed rule, each site would establish a dedicated response force, the TRT. Each member of the TRT would be provided with a 9-mm semiautomatic pistol, and each team would have a rifle of at least .30-caliber (7.62-mm).

A 9-mm pistol may cost as much as the \$1600 Sig-Sauer P210, or as little as the Smith & Wesson or Colt semiautomatics, which sell for \$500. The Berreta 92SBF, used by the U.S. Army and many American police forces, sells for about \$620 and is used as the typical weapon for this analysis. The cost of acquiring pistols for all TRT members at these locations, equipping them with holsters and badges, and providing reserve ammunition is shown in Table 3. Included in the cost of pistol acquisition are spares.

Each licensee would train its forces to use the new pistols, and provide classroom instruction and firing range qualification courses. This training time, assumed to be in addition to regular duties, would vary, for site-specific reasons from 6 hours to 28 hours. Four hours of range time, needed for familiarization and scored qualification, are assumed to be standard at all licensees.

The total cost of implementing this portion of the rule, including pistols, equipment, reserve and training ammunition, and instruction, is \$170,600 for the operating facilities and \$231,011 for all four facilities. Because security personnel currently qualify annually with their assigned weapons, no additional annual operating costs would result from this rule.

Table 3. 9-mm implementation costs, dollars

Item	B&W	UNC	NFS	GA
No. of Weapons @ \$620	30 <u>x 620</u>	24 <u>x 620</u>	36 <u>x 620</u>	30 <u>x 620</u>
Weapons Cost	18,600	14,880	22,320	18,600
Reserve Ammunition	12,700	10,150	15,230	12,700
Equipment ^(a)	4,400	4,150	4,650	4,200
Range Rental	1,250	1,000	750	1,500
Training:				
No. of Personnel	25	20	30	30
Hourly Wage Rate	x 19.31	x 21.07	x 15.12	x 32.03
Hours Training	<u>x 28</u>	<u>x 6</u>	<u>x 7</u>	<u>x 12</u>
Total Labor Cost	13,517	2,528	3,175	11,531
Instruction & Supervision	3,700	3,300	2,500	4,680
Ammunition - Familiarization and Qualifying Rounds	10,600	8,500	12,700	10,200
TOTAL	\$64,480	\$44,508	\$61,325	\$63,411

(a) Equipment includes holsters, spare clips, discharge barrels, identifying caps/badges/arm bands

Heavier caliber rifles, at least .30-caliber (7.62-mm), are also required under the proposed amendments. These weapons may be very costly, such as the .308-caliber Sig AMT, priced at \$2800. However, prices for other rifles of the .30-caliber (7.62-mm) minimum bore are generally around \$900. The Israeli-manufactured Galil, featuring tritium-light night sights and ambidextrous-handling folding stock, is battle tested and functions under adverse weather conditions, humidity and heavy dust. This weapon, priced at \$940, is used as the typical heavy rifle for this cost analysis. The costs of training ten individuals at each site and of acquiring five weapons with accompanying equipment, are shown in Table 4. The total implementation cost of the .30-caliber rifle requirement at the operating licensees would be \$28,535, and would be \$39,027 for all four licensees. Because security personnel are not currently armed with these weapons, annual qualification and training would be needed. The annual cost of the .30-caliber rifle requirement for training, instruction and supervision, and range rental would be approximately \$13,600 for the four licensees.

Table 4. Heavy-caliber rifle implementation costs, dollars

Item	B&W	UNC	NFS	GA
<u>No. of Weapons</u>	5	5	5	5
<u>@ \$940</u>	<u>x 940</u>	<u>x 940</u>	<u>x 940</u>	<u>x 940</u>
Weapons Cost	4,700	4,700	4,700	4,700
Reserve Ammunition	400	400	400	400
Equipment	400	400	400	400
Range Rental	250	250	250	250
Training:				
<u>No. of Personnel</u>	10	10	10	10
<u>Hourly Wage Rate</u>	<u>x19.31</u>	<u>x21.07</u>	<u>x15.12</u>	<u>x 32.03</u>
<u>Hours Training</u>	<u>x 7</u>	<u>x 7</u>	<u>x 7</u>	<u>x 7</u>
Total Labor Cost	1,352	1,475	1,058	2,242
Instruction & Supervision	1,500	1,500	1,850	1,650
Ammunition - Familiarization and Qualifying Rounds	850	850	850	850
TOTAL	\$9,452	\$9,575	\$9,508	\$10,492

This ruling could be implemented at a slightly lower capital cost if the sniper rifles currently owned by some licensees were used to satisfy this requirement.

3.1.2.2 Night Qualification with Assigned Weapons

Currently, guards at NRC-licensed facilities train in night firing for familiarization only, with no standard by which to measure effectiveness. Standardized training and qualification in this area would prepare the guard force to more effectively respond in the event of an incident occurring at night.

All security personnel would receive an initial period of classroom instruction and one nighttime qualifying session on the range, using only those weapons assigned to them. Because TRT personnel are required to train with all weapons, additional training and qualification time will be required for those individuals assigned to TRT duty.

Qualification courses would begin with familiarization firing. All personnel would then qualify with handguns by firing 30 to 60 rounds. TRT members would further qualify by firing 40 rounds with rifles and 8 rounds with shotguns. As shown in Table 5, the total cost of implementing this rule is approximately

\$182,870 for all four facilities. These training measures would also involve annual operating costs of approximately \$182,870 for all four facilities.

Table 5. Night firing and qualification costs, dollars

Item	B&W	UNC	NFS	GA
Guard Qualification:				
Training:				
No. Guards Trained	115	63	63	75
Hourly Wage Rate	X 19.31	X 21.07	X 15.12	X 32.03
Hours Training	X 4	X 6	X 6	X 6
Total Cost	8,883	7,964	5,715	14,414
TRT Qualification:				
No. Members Trained	25	30	30	25
Hourly Wage Rate	X 19.31	X 21.07	X 15.12	X 32.03
Hours Training	X 8	X 8	X 8	X 8
Total Cost	3,862	5,057	3,629	6,406
Ammunition - Qualifying Rounds	23,470	15,900	18,500	19,000
Supplies	250	200	200	200
Instruction & Supervision	8,400	10,700	7,390	8,010
Range Fees	4,450	4,320	2,950	3,000
TOTAL	\$49,315	\$44,141	\$38,384	\$51,030

3.1.3 Personnel and Parcel Search

The proposed rule requires that 100 percent of entering personnel and packages be searched for firearms, explosives, and incendiary devices. Safeguards event reports and regulatory effectiveness reviews have indicated that the current 5 percent random search of employees is not an effective deterrent and cannot provide high assurance that a concealed weapon or explosive will be detected. In addition, there is presently no means in place to guard against weapons hidden in hand-carried packages or containers that cannot be readily opened or otherwise effectively searched by direct observation. By correcting these weaknesses, the proposed 100 percent search requirement increases protection against an insider and achieves comparability with the 100 percent search of entering personnel and packages required at DOE facilities.

To comply with the amended rule licensees will be obliged to add several new inspection lanes at each facility. These lanes generally consist of:

- Walk-through detectors for metals and explosives. The Ion Track Instrument Corporation's model was used as the standard for this cost analysis, at a cost of \$33,200 each, including freight and installation.
- Pedestrian traffic controls, such as turnstiles, which cost \$3000 each.
- Guards to operate the inspection equipment and prevent forcible entry. Each facility will likely hire and train additional personnel. It was assumed that each facility will send the new guards to a local law enforcement academy.
- Hand-held metal detectors to back up the walk-through machines. These units cost \$250 each.

In addition to the new lanes, each licensee will probably install a single screening machine to provide x-ray detection of weapons in incoming parcels and packages. For this analysis, a built-in model costing \$53,500 after freight and setup, was used. On-site personnel will maintain and repair the new machines, so the licensees will send two maintenance personnel to classes offered by the equipment manufacturers.

Also, in addition to the requirements of the comparability rule, the NRC has determined that searches of hand-carried packages for explosives should be carried out with an explosive detector. This search must be integrated with the other search activities at the control point and therefore the cost of the necessary instruments is included in this cost analysis.

As shown in Table 6, B&W will add five inspection lanes and nine guards. In addition to the standard equipment mentioned above, B&W will monitor the inspection and entry area with closed circuit television, adding approximately \$100,000 to the cost of the expansion. Engineering, quality assurance and contract support are included in the effort, as well as guards and escorts used to monitor the construction activities. A seven-week training course at the local police academy costs \$5820 each for the new guards.

UNC will add three inspection lanes, with seven additional guards required. In addition to the cost for standard equipment, labor, and training, UNC will incur an additional cost of \$11,200 for a portable explosives detector.

NFS will add two lanes, with three additional guards needed. Equipment, labor and training costs, as well as the cost of a portable explosives detector, are summarized in Table 6.

The total cost of implementing this amended ruling at the three operating locations is \$1,355,740. The fourth facility was using 100% search at the time that the facility operations were suspended and no additional costs are anticipated. The annual costs for salaries of the additional guards, equipment operation, and maintenance, shown in Table 7, are \$719,949.

3.1.4 Armed Guards at Material Access Area Control Points

Current NRC regulations permit the use of watchmen (by definition not necessarily armed) at MAA entry/exit control points. However, NRC has determined that using armed guards at or near MAA portals and vaults strengthens protection against

Table 6. Implementation costs for 100% search, dollars

Item	B&W	UNC	NFS
<u>Inspection Lanes Added</u>	5	3	2
<u>Entry Building Expansion</u> @ \$50/square foot	3,600 sq. ft X 50	3,200 sq. ft X 50	2,200 sq. ft X 50
Total	180,000	160,000	110,000
<u>Walk-Through Explosives</u> Detectors	5	3	2
@ \$33,200	X 33,200	X 33,200	X 33,200
Total	166,000	99,600	66,400
<u>Turnstiles</u>	5	3	2
@ \$3,000	X 3,000	X 3,000	X 3,000
Total	15,000	9,000	6,000
<u>Hand-Held Metal Detectors</u>	20	12	8
@ \$250	X 250	X 250	X 250
Total	5,000	3,000	2,000
<u>Hand-Held Explosives</u> Detectors @ \$558	5 X 558	3 X 558	2 X 558
Total	2,790	1,674	1,116
Package X-Ray Machine	53,500	53,500	53,500
Other Equipment	100,000	11,200	10,200
Labor:			
Engineering	22,800	21,200	15,750
Contracts	2,470	1,800	1,550
Guards and Escorts	17,000	18,960	13,600
Maintenance Personnel	4,350	4,350	4,350
Training:			
Added Guards	9 X 5,820	7 X 6,750	3 X 6,150
Total	52,380	47,250	18,450
TOTAL	\$621,290	\$431,534	\$302,916

Table 7. Annual operating costs for 100% search, dollars

	B&W	UNC	NFS
Equipment Maintenance ^(a)	8,000	4,800	3,200
Guard Salaries:			
Added Guards	9	7	3
Hourly Wage	X 19.31	X 21.07	X 15.12
Hours per year (240 days)	X 1920	X 1920	X 1920
Total Wages	333,677	283,181	87,091
TOTAL	\$341,677	\$287,981	\$90,291

(a) Manufacturer's repair contracts.

adversaries. Therefore, the proposed amendment requires the use of trained, armed guards at each MAA portal whenever the affected area is being used. The regulations state that it is acceptable to arm these guards with revolvers, as they are not assigned to TRT duty. However, it is likely that these guards would also use the 9-mm pistol, simply to maintain uniformity, and costs have been completed with that assumption.

Implementation of this rule will require that the two watchmen currently used at each MAA control point be armed and trained, as well as two replacements at each facility. All licensees would provide weapons for two personnel at each control point, covering operating shifts only, and would retain spare weapons. Each site already uses watchmen at the MAA control points and the reforms require that only armed guards be used. It is assumed that watchmen already receive security force training and would only need weapons training and qualification. GA would not be affected by this regulatory change. UNC has unarmed watchmen, but only while they are waiting for security clearances and weapons qualification. UNC does not use these watchmen at MAA control points. An issue that has not been addressed in the cost estimates is that some of the watchmen may not be able to qualify to be armed guards. In such cases new guards would need to be hired, trained and qualified.

In addition, three hours of classroom instruction and four hours of range training would be needed to qualify these personnel to carry weapons. As shown in Table 8, the estimated cost to arm and train all watchmen at the two licensees is \$39,120. Because all portals are currently controlled, the only additional annual expenses resulting from this rule are the cost of annual weapons qualification, instruction and ammunition and the pay differential between guards and watchmen. The annual cost due to the pay differential is approximately \$512,813.

3.1.5 Double Physical Barriers at Protected Area Perimeter

All fuel facilities possessing formula quantities of SSNM would be required to have double physical personnel barriers at the protected area perimeter. These fences must be high enough and separated by enough distance to allow assessment

of attempted penetration of the perimeter and to delay attempts at unauthorized exit from the protected area thereby allowing guards and TRTs adequate time to respond. Specifically, the outer fence must be at least eight feet high, and the inner fence must also be at least eight feet high. Typically, these fences will be separated by a 20-foot graded and graveled space, which will be monitored by intrusion detection systems. In those sections where buildings form part of the perimeter, the buildings may constitute a personnel barrier if the roof of the building is protected with a barbed topping such as razor wire. Vehicle entrances must be protected with vehicle traps, to be discussed subsequently, and remotely operated double gates, which are not open simultaneously.

Construction of the double fencing will have varied impacts on the licensees. The fact that the second barrier must delay intruders long enough to assure accurate assessment of an intrusion makes installation of a twelve foot fence an attractive option. Therefore, costs for 12-foot inner fences are given in Table 9 as well as the standard 8-foot fence. At B&W, approximately 5000 feet of existing fence must be moved to form the outside barrier. An additional 2500 feet of existing fence may be raised to the 12-foot height, while approximately 2500 feet of new fence must be added to form the inside barrier.

In addition, it should be noted that B&W will install a new microwave intrusion detection system at the same time, even though this is not a direct requirement of this rule. It is estimated that this new system will cost approximately \$62,400.

The UNC facility will move 5000 feet of existing fence to the outside perimeter, install 5000 feet of new 12 foot fencing and construct several vehicle traps.

Table 8. Armed guards at MAA control points, costs, dollars

	B&W		NFS	
Total Number of Watchmen	12	12	11	11
Hours in Training/duty hours per year	X 7	X 1920	X 7	X 1920
Hourly Rate	X 12.00	X 12.00	X 11.19	X 11.19
Total Training Labor	1,008	276,480	862	236,333
Ammunition and Equipment	6,168		5,663	
Instruction	3,700		2,500	
Weapons Purchased ^(a) @ \$620	16 X 620		15 X 620	
	9,920		9,300	
TOTAL	\$20,796	\$276,480	\$18,324	\$236,333

(a) Weapons are purchased for all guards, with four spares.

The NFS facility will move 3200 feet of existing fence to the outer perimeter and will probably raise approximately 1000 feet of current fence to 12 feet. An additional 3080 feet of new 12-foot fence will be added to the inner barrier.

GA Technologies will move approximately 1000 feet of the current fence and will raise the remainder. Additional fence will be added inside the existing fence. On top of the building, a combination of a fence and razor ribbon will be used to complete the second barrier.

Table 9. Fence costs, dollars

	B&W	UNC	NFS	GA
<u>Outside Fence (8 ft.)</u>				
Existing Fence Moved, Ft.	2,500	5,000	3,200	1,000
Cost per linear foot	X 12	X 15	X 15	X 15
Total Cost	30,000	75,000	48,000	15,000
Add Fence, Ft.	2,500	1,000	1,000	1,000
Cost per linear foot	X 12	X 15	X 15	X 15
Total Cost	30,000	15,000	15,000	15,000
<u>Inside Fence (12 ft.)</u>				
Existing Fence Raised, ft.	2,500	None	1,000	1,000
Cost per linear foot	X 9.5		X 9.5	X 9.5
Total Cost	23,750		9,500	9,500
New 12 ft. Fence, ft.	2,500	5,000	3,080	2,000
Cost per linear foot	X 20	X 20	X 20	X 40
Total Cost	50,000	100,000	61,600	80,000
Vehicle Traps	10,200	6,800	3,400	3,400
Temporary Fencing	6,000	15,000	2,100	900
TOTAL	\$119,950	\$196,800	\$124,600	\$108,800

Part of the perimeter is close to other site buildings, storage areas for process chemicals, and delivery access points. Therefore, it may not be possible to alter the plant layout to provide 20 feet of separation between the two fences. Additional surveillance measures will be used and building doors adjacent to that part of the fence will be monitored.

As shown in Table 10, considerable site work will be required in addition to erecting fences. B&W site work is an estimated \$175,000 for regrading its patrol road, moving or adding light poles to the perimeter, moving existing intrusion monitors and installing surveillance cameras. In addition, all of these construction activities must be observed by facility guards and any construction inside of the perimeter will require armed escorts, an extra expense.

UNC site work costing \$359,481 includes regrading the patrol road and separation area, adding razor ribbon to walls on the perimeter, and moving and adding light poles. UNC will move several existing intrusion detection system monitors, add new monitors to cover the expanded perimeter, install surveillance cameras, and construct a ten-foot-high retaining wall along 600 feet of the perimeter. Because most of this construction and equipment installation will be performed inside of the existing perimeter, UNC's costs to provide armed escorts for construction crews and to inspect incoming material shipments will be much higher than corresponding costs at other sites.

NFS site work includes regrading the separation area and the patrol road, moving several light poles to the new perimeter, moving the microwave system, and adding surveillance cameras.

The total cost of all fencing, site preparation, and labor at all facilities is \$1,505,278. No incremental annual costs are expected, as the perimeter is already patrolled and maintained at each site.

3.1.6 Revised Design Basis Threat

The design basis threat would be amended to include use of land vehicles to transport personnel and to breach perimeter barriers. To protect against the revised design basis threat, the following protective measures would be implemented:

- Placement of hydraulically operated wedge barricades at all entrances regularly used for vehicle traffic, hereafter referred to as "primary entrances." Typical devices cost \$39,250 each, including freight, installation and expenses incurred to train maintenance personnel.
- Placement of manually operated, reinforced, bollard barricades at all entrances that are usable but are not used on a regular basis, referred to as "secondary entrances." This equipment costs \$8500 each, including freight, installation and maintenance training.
- Installation of vehicle cables and supports on the entire protected area perimeter, outside of the regular physical personnel barriers. A standard cost of \$10 per linear foot is applied, including supports, setting posts in concrete and installation.
- Reinforcement of the vehicle cables in all sectors of the perimeter readily accessible from any roadway. This reinforcement will be accomplished with concrete vehicle barriers (Jersey Bounces). A standard cost of \$20 per linear foot is applied, including reinforcement posts, cables to connect the bounces, and installation.

Table 10. Additional physical barrier implementation costs, dollars

Item	B&W	UNC	NFS	GA
Move Existing Intrusion Detectors	N/A	2,800	9,200	400
Additional Intrusion Detectors	62,400	9,600	4,800	9,600
Grade/Gravel Separation Area	N/A	30,000	24,000	1,200
Move Surveillance Cameras	2,000	4,000	8,000	6,000
Additional Surveillance Cameras	32,000	32,000	32,000	64,000
Site Preparation				
Regrade Patrol Road	67,000	25,000	20,000	5,000
Razor Ribbon	750	3,000	2,250	7,500
<u>Light Poles Moved</u> each	<u>14</u> X 1,000	<u>10</u> X 1,000	None	<u>4</u> X 1,000
Total Cost	14,000	10,000		4,000
<u>New Light Poles</u> each	None	<u>25</u> X 2,500	<u>14</u> X 2,500	<u>8</u> X 2,500
Total Cost		62,500	35,000	20,000
Other	8,000	30,200 ^(a)	None	82,000 ^(b)
Support Labor				
Guards	21,672	75,981	9,907	26,808
Engineering & QA	40,660	74,400	11,520	31,480
TOTAL	\$248,482	\$359,481	\$156,677	\$257,988

(a) Cost of a 10-foot high retaining wall and train gates for second fence.

(b) Cost of door sensors and surveillance devices adjacent to building and process chemical storage areas.

As shown in Table 11, the total cost to implement these measures is \$530,710. The cost estimates for labor assume that these measures would be implemented in conjunction with the implementation of the additional physical barriers. If the measures to protect against the revised design basis threat for the vehicles are implemented separately, then the costs would be higher due to the duplication of effort for gates and surveillance. B&W would spend about \$148,320 to protect one primary entrance and two secondary entrances, as well as completely ring the perimeter with vehicle cable and reinforce 2000 feet of the perimeter that adjoin roadways. Personnel costs include engineering, quality assurance and purchasing support, as well as guards to observe installation.

UNC would spend about \$190,970 to protect two primary entrances, completely ring the perimeter with vehicle cable, and reinforce 3000 feet of the perimeter that adjoin a roadway.

NFS would spend about \$126,130 to protect one primary entrance and two secondary entrances, as well as completely ring the perimeter with vehicle cable, reinforcing 1350 feet of the perimeter that adjoin a roadway. Engineering, quality assurance and purchasing support would also be provided, as well as guards to observe installation of the devices.

GA would spend about \$65,290 to protect one primary entrance and reinforce the perimeter that adjoins roadways. The GA facility is located next to a hill and there are embankments between the parking lots and the facility. Solutions to the barrier requirements are therefore highly site specific. Because maintenance personnel are already employed by the facilities, no additional maintenance costs will result from this rule.

3.2 Impacts on the NRC

The NRC would send three individuals to each of the sites to review all physical implementation measures resulting from the proposed amendment. In addition, the NRC would send three individuals to each of the sites to monitor the initial training exercises. Travel expenses and per diem costs for these five-day trips are shown in Table 12. A contracted consultant is used to develop guidance for the NRC and the licensees on developing and implementing an exercise program. The estimated cost for this contractor is \$300,000. Implementation of this rule will cost the NRC \$321,000, as shown in Table 12.

Each licensee performs exercises to test parts of the facility protection system. The NRC has developed NUREG/CR 5081 (see Ref. 6), and NUREG/CR 5172 (see Ref. 7) to provide guidance for and to assure consistency among licensee training and exercise programs. After the rule has been implemented, the NRC will send three individuals to each site to observe the yearly TRT exercises. Annual NRC travel and per diem costs are estimated to be \$6500 for the three operating facilities. When the fourth facility is operational, an additional \$2,200 per year would be incurred.

Table 11. Cost to protect against the revised design basis threat

	B&W	UNC	NFS	GA
<u>Primary Access Protection:</u>				
<u>No. of Primary Access Points</u>	1	2	1	1
Delta Barricades @ \$39,250	X 39,250	X 39,250	X 39,250	X 39,250
Total Cost	39,250	78,500	39,250	39,250
<u>Secondary Access Protection:</u>				
<u>No. of Secondary Access Points</u>	2	None	2	None
Delta Bollards @ \$8,500	X 8,500		X 8,500	
Total Cost	17,000		17,000	
<u>Vehicle Cable</u>				
Total Perimeter, ft. @ \$10/foot	5,000 X 10	5,000 X 10	4,080 X 10	1,000 X 10
Total Cost	50,000	50,000	40,800	10,000
<u>Reinforcements</u>				
Perimeter Reinforced @ \$20/foot	2,000 X 20	3,000 X 20	1,350 X 20	600 X 20
Total Cost	40,000	60,000	27,000	12,000
<u>Support Labor</u>				
Engineer & QA	1,700	2,040	1,730	3,250
Purchasing	370	430	350	790
TOTAL	\$148,320	\$190,970	\$126,130	\$65,290

Table 12. Impacts on NRC from rule implementation, dollars

Travel:

Two Trips to All Facilities		8
Cost per trip	X	450
NRC Personnel per Trip	X	<u>3</u>
Total Travel Expense		10,800

Per Diem:

Two Trips to All Facilities		8
Lengths of Trips, days	X	5
Cost per Day	X	85
NRC Personnel per Trip	X	<u>3</u>
Total Per Diem Expense		10,200

Contracted Effort:	300,000
--------------------	---------

Total NRC Costs	\$321,000
-----------------	-----------

3.3 Impact on Others

The benefit to the public is the strengthened protection of weapons-usable material against theft. No negative impacts on the public have been identified.

4. REFERENCES

1. National Security Council, "Domestic Safeguards," "National Security Decision Memorandum 254, April 27, 1987."
2. Adams, K. G., and Roscoe, B. J., Vehicle Barriers: Emphasis on Natural Features, NUREG/CR-4250, U.S. Nuclear Regulatory Commission, Washington, D.C., 1985.
3. Sandia National Laboratory, Barrier Technology Handbook, SAND 77-0777, 1978.
4. Mahoney, W. D., Means Construction Cost Data, R. S. Means Company, Inc., Kingston, Massachusetts, 1987.
5. Richardson Engineering Services, Richardson's Rapid Cost Estimation Manual, San Marcos, California, 1987.
6. Telfair, W. D., D. A. Moul, J. W. Klingelhofer, and W. R. Leonard, Tactical Exercise Planning Handbook, NUREG/CR-5081, U.S. Nuclear Regulatory Commission, Washington, D.C., 1988.
7. Telfair, W. D., D. A. Moul, J. W. Klingelhofer, K. M. Jourjevich and W. R. Leonard, Tactical Exercise Reference Manual, NUREG/CR-5172, U.S. Nuclear Regulatory Commission, Washington, D.C., 1988.

APPENDIX A

ALTERNATE PHYSICAL BARRIER CONCEPTS

A.1. INTRODUCTION

Double physical barriers at the protected area perimeter to delay intruders and enhance detection have been considered. It is assumed that the intrusion detection system has been installed between the two barriers. Three options are considered in this appendix as an alternative to the second fence described in Section 2.3. These options are: ten parallel horizontal rolls of barbed concertina tape, a general purpose barbed tape obstacle in mounds of six rolls each, or the use of additional guards. It is assumed that the barriers discussed here are installed as the inner barrier to delay the adversary entering the site after triggering the intrusion detection system, thereby allowing time for protective forces assessment. It is further assumed that vehicle barriers are located at or outside of the outer fence, so that an adversary breaching the perimeter must carry any breaching aids to be used on the inner barrier.

The present value cost for each of the alternatives may be estimated using a discount rate of 10 percent and an expected operating life of 20 years. The estimated costs for each of these alternatives, as will be discussed in the following sections, are:

Table A.1 Estimated Alternate Physical Barrier Costs, thousands

<u>Topic</u>	<u>Implementation Cost (thousands of dollars)</u>	<u>Annual Cost (thousands of dollars)</u>	<u>Present Value Cost (thousands of dollars)</u>
Eight Foot Fence	241		241
Twelve Foot Fence	412		412
Concertina Tape	513	80	1,198
Razor Tape	1,887	36	2,196
Additional Guards	480	2,518	21,915

A.1.1 Reference Costs

Table A.2 shows the reference cost for the eight and twelve foot fences, as described in Section 3.1.5. Site preparation costs for the second physical barrier and for the alternatives are assumed to be identical and can therefore be omitted when comparing costs. The primary difference between the eight and twelve foot fences is that for adding a second eight foot fence, the placement is relatively straightforward. The twelve foot fence is, however, placed as the inside fence and may require moving existing fences or adding new fence on the outer fence perimeter. The total cost (not including site preparation) for the twelve foot fence for the four facilities is \$412,100 as compared to \$241,200 for adding an eight foot fence. The cost differential for the twelve foot fence as compared to the eight foot fence is \$170,900.

Table A.2 Reference fencing costs, dollars

Item	B&W Lynchburg, VA	UNC Montville, CT	NFS Erwin, TN	GA San Diego, CA
Add Fence, ft.	5,000	5,000	4,080	3,000
Cost per linear foot	12	15	15	15
TOTAL FOR 8' FENCE	\$ 60,000	\$ 75,000	\$ 61,200	\$ 45,000

Alter Outside Fence (8 ft.)

Existing Fence				
Moved, ft.	2,500	1,000	1,000	NONE
Cost per linear foot	<u>x 8</u>	<u>x 8</u>	<u>x 8</u>	
Total Cost	20,000	8,000	8,000	
Add Fence, ft.	2,500	1,000	1,000	1,000
Cost per linear foot	<u>x 12</u>	<u>x 15</u>	<u>x 15</u>	<u>x 15</u>
Total Cost	30,000	15,000	15,000	15,000

Inside Fence (12 ft.)

Existing Fence				
Raised, ft.	2,500	1,000	1,000	1,000
Cost per linear foot	<u>x 9.5</u>	<u>x 9.5</u>	<u>x 9.5</u>	<u>x 9.5</u>
Total Cost	23,750	9,500	9,500	9,500
New 12 ft. Fence, ft.	2,500	5,000	3,080	2,000
Cost per linear foot	<u>x 20</u>	<u>x 20</u>	<u>x 20</u>	<u>x 40</u>
Total Cost	50,000	100,000	61,600	80,000
TOTAL	\$117,500	\$107,000	\$88,600	\$99,000

Apart from costs, another criterion for comparing the alternatives is the delay time. For each of the barriers discussed below, the delay time exceeds the delay time for the standard eight foot fence.

A.1.2 Concertina Barrier

Barbed tape concertina consists of cylindrical-shaped coils 36 inches in diameter and 50 feet long. It may be affixed to the top of a standard security fence, attached vertically to the fence, or installed horizontally on the ground. In the application described here, the barbed tape concertina is installed horizontally on the ground in parallel rows as an alternative to the standard security fence. Each coil is assumed to consist of a single coil with a diameter of 36 inches. Use of concertina installed on the ground is more effective as a delay mechanism

when installed inside the perimeter fence, because the adversary would need to carry breaching aids over the outer fence and through the intrusion detection fields. The delay of the standard fence is exceeded by installing ten rows of barbed tape concertina horizontally on the ground.

The cost of barbed tape ranges from less than \$1.00 to several dollars per foot for the material. Installation costs per foot are about equal to the cost of the material. The cost used in this analysis is \$2.40 per foot for materials and installation.

Barbed tape concertina poses a potential hazard to passing plant personnel as compared to a standard security fence. Even if the barbed tape concertina is used rather than the inside fencing, it may be necessary to install a fence to keep plant personnel from accidental contact with the barbed tape concertina. Such a fence need not meet the same standards for height and strength as the fence indicated in the analysis for the proposed rule. These fences or personnel separators would only be required adjacent to personnel walkways, vehicle access points and storage areas.

Table A.3 shows the cost of the concertina barrier. The total cost is \$513,320 for the four facilities. The cost differential as compared to the eight foot standard security fence is an increase of \$272,120.

Additional maintenance costs for the concertina barrier would consist of cleanup, replacement of damaged tape and repair of tiedowns. Cleanup would require approximately 16 man-hours per quarter to remove leaves and trash and to apply a herbicide to control weeds. A defoliant is expected to be applied annually at a cost of \$0.10 per square foot to a path ten feet wide under the tape. Barbed tape concertina is susceptible to environmental conditions and has a life expectancy of three to twenty years. For the purposes of the cost estimates here, the assumed life expectancy is 10 years with 10 percent of the tape replaced each year. The expected annual costs are \$80,465 per year for the four facilities.

A.1.3 Razor Tape Barrier

General purpose barbed tape obstacle (GPBTO) is somewhat similar to concertina barrier except that it has a double spiral and longer barbs. The example coil has a length of 66 feet and diameter of 30 inches. Each coil is assumed to consist of a double coil with the outer coil having a diameter of 36 inches and the inner coil having a diameter of 24 inches. When installed in ground applications, the rolls are anchored to the ground with stakes spaced 5 to 22 feet apart depending on the local winds. A delay greater than that of a standard eight foot fence could be achieved using three mounds of six coils each. The cost for materials and installation is assumed to be \$5.80 per foot of coil or \$104.40 for the three mounds.

As with a concertina barrier, a problem to be addressed in the installation of GPBTO is to separate the tape from personnel traffic in order to prevent injuries. In considering the tape as an alternative to the interior fence, the licensee should consider methods to separate the personnel traffic from the tape in order to prevent injury. Other problems to be addressed in the operating costs include removal of trash that blows in and the removal of grasses and weeds that grow up under the tape. Grasses and weeds may be controlled by the

Table A.3 Concertina barrier costs, dollars

Item	B&W Lynchburg, VA	UNC Montville, CT	NFS Erwin, TN	GA San Diego, CA
<u>Alter Outside Fence (8 ft.)</u>				
<u>Existing Fence Moved, ft.</u>	5,000	2,000	2,000	1,000
<u>Cost per linear foot</u>	<u>x 8</u>	<u>x 8</u>	<u>x 8</u>	<u>x 8</u>
Total Cost	40,000	16,000	16,000	8,000
<u>Ten Parallel Coils</u>				
<u>Materials, ft.</u>	5,000	5,000	4,080	3,000
<u>Cost per linear foot</u>	<u>x 24</u>	<u>x 24</u>	<u>x 24</u>	<u>x 24</u>
Total Cost	120,000	120,000	97,920	72,000
<u>Personnel Separator, ft.</u>	1,000	1,500	600	800
<u>Cost per linear foot</u>	<u>x 6</u>	<u>x 6</u>	<u>x 6</u>	<u>x 6</u>
Total Cost	6,000	9,000	3,600	4,800
TOTAL INITIAL COSTS	\$166,000	\$145,000	\$117,520	\$84,800
<u>Annual Costs</u>				
<u>Replacement Tape, ft.</u>	500	500	408	300
<u>Cost per linear foot</u>	<u>x 24</u>	<u>x 24</u>	<u>x 24</u>	<u>x 24</u>
Total Cost	12,000	12,000	9,792	7,200
Defoliant	9,000	9,000	7,344	5,400
Total Material Cost	21,000	21,000	17,136	12,600
<u>Personnel, hours</u>	64	64	64	64
<u>Cost per hour</u>	<u>x 17.36</u>	<u>x 20.00</u>	<u>x 15.94</u>	<u>x 24.64</u>
Total Labor Cost	1,944	2,240	1,785	2,760
TOTAL ANNUAL COSTS	\$22,944	\$23,240	\$18,921	\$15,360

use of pavement or gravel underneath the tape or by the use of soil sterilants or defoliant agents.

Table A.4 shows the costs for the Razor tape barrier. The total cost is \$1,806,552 for the four facilities. The cost differential is \$1,565,352 compared to the standard security fence. The annual costs are similar to those discussed in Section A.2 and are \$36,289 per year.

A.4 Additional Guards

Rather than providing a second fence or one of the alternate barriers, a facility potentially could choose to deploy additional guards. This option is difficult to evaluate as fence and guards are generally used for different functions. Therefore, the costs contain significant uncertainty. The minimum costs can, however, be estimated. It is assumed that the purposes of fencing include: 1) delay adversaries after triggering the intrusion detection system long enough for the guards to assess the event and 2) reduce the occurrence of intrusion detection system false alarms due to passing plant personnel. Additional guards posted at the perimeter would provide reduced response time, increased surveillance and control of passing plant personnel. It is assumed that five shifts are needed to provide continual coverage and to allow for absences.

The minimum number of guards required to provide surveillance of the perimeter is two per shift if they can be placed at opposite corners of a square perimeter. For the actual facilities, the minimum number would vary from three to five guards per shift due to irregularities in the perimeter fencing, buildings, entry points, and terrain variations. The estimates of the number of guards at each facility are based on having enough guards to provide complete surveillance of the perimeter. The labor rates do not include guards for rotation and breaks, which are assumed to be handled by the existing guard force. Additionally, the actual number is likely to be significantly greater than that shown because nominally each guard should not be expected to cover approximately 1200 feet of perimeter.

The costs to train the additional guards that would be needed are shown in Table A.5. It has been assumed that each guard would require seven weeks of training and indoctrination at the facility before performing duties. The total cost for the four facilities is \$480,402. This represents an increase of \$239,202 as compared to the costs for the eight foot fence.

The annual operating costs are shown in Table A.6. The total annual cost for guard time is an increase of \$2,517,848 per year for the four facilities as compared to annual costs for the fencing. Additionally, these guards would require equipment repair and maintenance, training and weapons qualification.

An additional cost to be addressed is the addition of supervisor for the added guards. Assuming that one supervisor is needed for each twelve guards, then each site would need an additional two or three supervisors, who would also assist in instruction, at an initial cost of \$274,074 for the four facilities and an annual cost of \$496,416.

Table A.4 Razor tape barrier costs, dollars

Item	B&W Lynchburg, VA	UNC Montville, CT	NFS Erwin, TN	GA San Diego, CA
Alter Outside Fence (8 ft.)				
Existing Fence				
Moved, ft.	5,000	2,000	2,000	NONE
Cost per linear foot	<u>x 8</u>	<u>x 8</u>	<u>x 8</u>	
Total Cost	40,000	16,000	16,000	
Three Six Coil Mounds				
Materials, ft.	5,000	5,000	4,080	3,000
Cost per linear foot	<u>x104.40</u>	<u>x104.40</u>	<u>x104.40</u>	<u>x104.40</u>
Total Cost	522,000	522,000	425,952	313,200
Personnel				
Separator, ft.	1,000	1,500	600	800
Cost per linear foot	<u>x 6</u>	<u>x 6</u>	<u>x 6</u>	<u>x 6</u>
Total Cost	6,000	9,000	3,600	4,800
TOTAL INITIAL COSTS	\$568,000	\$547,000	\$445,552	\$318,000
Annual Costs				
Defoliant	9,000	9,000	6,560	2,000
Personnel, hours	112	112	112	112
Cost per hour	<u>x 17.36</u>	<u>x 20.00</u>	<u>x 15.94</u>	<u>x 24.64</u>
Labor Cost	1,944	2,240	1,785	2,760
TOTAL ANNUAL COSTS	\$10,944	\$12,240	\$8,345	\$4,760

Table A.5 Training armed guards for site perimeter, costs, dollars

Item	B&W	UNC	NFS	GA
<u>Number of Observation Points</u>	3	4	3	5
<u>Number of Shifts</u>	5	5	5	5
<u>Total Number of Guards</u>	15	20	15	25
<u>Starting Hourly Rate</u>	12.00	11.22	11.19	24.64
<u>Hours Training</u>	X 280	X 280	X 280	X 280
Total Training Labor	50,400	62,832	46,998	172,480
Ammunition and Equipment	7,686	10,976	7,686	12,743
Instruction	7,073	6,464	9,660	28,904
<u>Weapons Purchased</u> ^(a)	15	20	15	25
@ \$620	X 620	X 620	X 620	X 620
	9,300	12,400	9,300	15,500
TOTAL	\$74,459	\$102,672	\$73,644	\$229,627

(a) Weapons are purchased for all guards.

Table A.6 Annual costs for armed guards at site perimeter, costs, dollars

Item	B&W	UNC	NFS	GA
<u>Total Number of Guards</u>	15	20	15	25
<u>Hourly Rate after Training</u>	12.60	14.84	13.46	24.64
<u>Hours per Year</u>	X 1920	X 1920	X 1920	X 1920
Total Labor	362,880	569,856	387,648	1,182,720
Ammunition and Equipment	2,614	3,452	2,614	4,290
Instruction	202	470	276	826
TOTAL	\$365,696	\$573,778	\$390,538	\$1,187,836

ENCLOSURE F

Draft Congressional Letter

DRAFT CONGRESSIONAL LETTER

Dear Mr. Chairman:

Enclosed for your information is a Federal Register Notice for the publication of a rule on safeguards requirements for fuel facilities possessing formula quantities of strategic special nuclear material. The Nuclear Regulatory Commission (NRC) is amending its physical protection and security personnel performance regulations for these facilities to a level equivalent to that at comparable Department of Energy (DOE) fuel facilities. The changes to enhance NRC's safeguards requirements are the result of a recent study which compared NRC's requirements with DOE's recently upgraded security system and are supported by findings made from reviews of NRC's Regulatory Effectiveness Reviews, safeguards event reports, licensing actions, and inspection reports.

The findings have led to the proposed strengthening of safeguards requirements in the following areas: (1) security system performance evaluation through tactical response team exercises, (2) night firing qualification for guards using all assigned weapons, (3) search of 100 percent of entering personnel and packages, (4) posting of armed guards at material access area control points, (5) provision of an additional physical personnel barrier around the protected area, and (6) revision of the design basis threat to include possible use of a land vehicle by postulated adversaries and implementation of measures to prevent forcible vehicle entry into the protected area.

The amendments would provide greater assurance that physical safeguards at fuel facilities possessing formula quantities of SSNM can provide the capability to protect against the design basis threat.

The rule will become effective 30 days after publication. The requirements specified in items (2), (3), and (4) have been implemented with the cooperation of the affected licensees and licenses have been appropriately amended. The licensees will have 6 months to submit plans to implement requirements (1), (5) and (6). These plan amendments are required to be effective within 365 days of approval.

Sincerely,

Eric S. Beckjord, Director
Office of Nuclear Regulatory Research

Enclosure: Federal Register Notice

cc: Ranking Minority Members

ENCLOSURE G

Draft Public Announcement

Draft Public Announcement

NRC AMENDS SAFEGUARDS REQUIREMENTS
FOR FUEL FACILITIES POSSESSING FORMULA QUANTITIES
OF STRATEGIC SPECIAL NUCLEAR MATERIAL

The Nuclear Regulatory Commission (NRC) is amending its regulations to strengthen safeguards requirements at fuel facilities possessing formula quantities of strategic special nuclear material (SSNM) to prevent the theft of this material. Currently, only four NRC-licensed facilities would be obligated to fulfill these imposed safeguards requirements although one or two additional facilities could be affected in the near future. This action has been prompted by a determination that physical protection measures at these fuel facilities should be enhanced based on a recent study which compared NRC's security requirements for SSNM with the Department of Energy's (DOE) recently upgraded security system for comparable facilities. The changes are also supported by findings during reviews of safeguards event reports, Regulatory Effectiveness Reviews, licensing actions, and inspection reports.

Coordination reviews conducted jointly by the NRC and the DOE recently produced classified findings regarding the comparability of safeguards programs at licensed and license-exempt fuel facilities possessing formula quantities of SSNM. These findings have led to the proposed strengthening of safeguard requirements in the following areas: (1) security system performance evaluation through tactical response team exercises, (2) night firing qualification for guards using all assigned weapons, (3) 100 percent search of entering personnel and packages, (4) posting of armed guards at material access area control points, (5) provision of an additional physical personnel barrier around the protected area, and (6) revision of the design basis threat to include possible use of a land vehicle by potential adversaries as a means of transportation and implementation of measures to prevent forcible vehicle entry into the protected area.