

May 21, 1984
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USNRC

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION '84 MAY 29 AIO:42

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD OF SECRETARY
OF LICENSING & SERVICE
BRANCH

In the Matter of)	
)	
THE REGENTS OF THE UNIVERSITY OF CALIFORNIA)	Docket No. 50-142
)	
(UCLA Research Reactor))	(Proposed Renewal of Facility License)

NRC STAFF RESPONSE TO THE CBG
"ESTIMATE OF THREAT" FILED MAY 1, 1984

I. INTRODUCTION

On May 1, 1984, counsel for Committee to Bridge the Gap (CBG) filed a document entitled "Committee to Bridge the Gap's Estimate of the Level of Threat Facing the UCLA Reactor Facility Submitted in Response to the April 20, 1984 Pre-Hearing Conference Order," (herein referenced as "Estimate") as directed by the April 20, 1984 Atomic Safety and Licensing Board (Board) Order (April 20th Order). As discussed below, the document does not comply with the Board's instructions and does not establish a credible specific threat pursuant to which CBG Contention XX is to be litigated.

II. BACKGROUND

At the February 8-9, 1984 prehearing conference held to discuss future litigation of Contention XX, the Board directed CBG to provide a detailed summary of proposed testimony of CBG experts, Dr. Taylor and

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Dr. Hafemeister, as to the credible safeguards threat against the UCLA research reactor,^{1/} in order for CBG to establish a prima facie set^{2/} of allegations to be litigated under Contention XX. The threat of sabotage to be forwarded by Drs. Taylor and Hafemeister was to describe the vulnerability of the UCLA facility to sabotage that would have radiological consequences, in terms of risk to public health and safety^{3/} so that the Board could decide the standard of security necessary at the UCLA facility.^{4/} It is this description of threat by CBG's experts that the May 1, 1984 Estimate purports to provide.

III. DISCUSSION

CGB's Estimate does not comply with the Licensing Board's April 20th Order and related prehearing conference instructions^{5/} in two significant respects: (1) the Estimate was not provided by CBG's qualified experts (nor was it a summary of the CBG experts' proposed testimony), and (2) it was not a detailed, specific statement of the credible threat which CBG believes establishes a prima facie set of allegations to be litigated under Contention XX.

^{1/} Tr. in camera 3531-33, 3551, 3564. The Board's Prehearing Conference Order, April 20, 1984 also notes at p. 7, that Drs. Taylor and Hafemeister are proffered by CBG to delineate CBG's view of the threat facing the UCLA facility.

^{2/} Tr. in camera 3550, 3567. The Board also stated that CBG must clarify Contention XX after discovery. Tr. in camera 3491, 3510, 3512.

^{3/} Tr. in camera, 3538, 3544.

^{4/} Tr. in camera, 3549.

^{5/} See notes 1, 2 and 3, supra.

Contrary to the Licensing Board's instructions that CBG establish its credible threat by its qualified experts, Drs. Taylor and Hafemeister, CBG's Estimate, in its entirety, is merely the unsupported assertions of a layman, namely CBG's counsel, Mr. Bay. The Estimate does not contain citations to any authoritative source for any of the many assertions by CBG's counsel. Neither are any of the assertions supported by an affidavit of either of CBG's experts. It follows that CBG's Estimate, as submitted, is entitled to no weight in establishing a credible safeguards threat against the UCLA research reactor.

More importantly, contrary to the Licensing Board's request for a detailed statement of a specific credible safeguards threat, CBG's Estimate is comprised only of vague and generalized assertions. The Estimate fails to specifically describe the vulnerability of the UCLA facility to theft or sabotage, or the risk to the public health and safety. It therefore fails to provide the Board with a sufficient basis for the Board to decide on the necessary standard of security for the UCLA facility.

As examples of these deficiencies in the CBG Estimate, the Staff notes that the threat of theft described by Mr. Bay is only a generalization, related to the "value" of special nuclear material (SNM) on site for use in weapons, blackmail, or sale on the black market. Estimate, p. 2. Mr. Bay offers assertions of methods of weapons manufacture, dose estimates of SNM releases and monetary value of the fuel, but such assertions are unsupported. Estimate at 2-3. Mr. Bay also offers his opinion that "one must assume the possibility of a theft

attempt being undertaken by a dedicated group of persons acting in concert and willing to use violent means [and that] they will be well-armed and equipped and versed in defeating detection systems." Estimate, at 3-4. No explanation or reference is provided to support this assumption, nor is any specific number of persons or their equipment or abilities described.

The Staff also notes that the description of sabotage threat in CBG's Estimate is equally vague and unsupported. Only general statements such as: "[t]errorism activity is on the rise"; "[n]uclear facilities . . . are the object of intense public fascination in this country."; and "[d]uring the upcoming Olympic Games, the attention of the entire world will be focused on Los Angeles" are offered, without basis, to support the unspecified allegation of sabotage threat. Estimate, at 4. Again, Mr. Bay concludes by stating "[o]ne must assume significant resources and sophistication will be brought to bear in a violent terrorist attack by a group of persons acting in concert [who] will be well-armed, well-equipped, versed in detection systems and the use of explosives." Estimate, at 5. In conclusion, Mr. Bay states that UCLA has "significant value" to perpetrators of theft and sabotage and "one must postulate and protect against a well-equipped, sophisticated attack, assault, or diversion effort." Estimate, at 6.

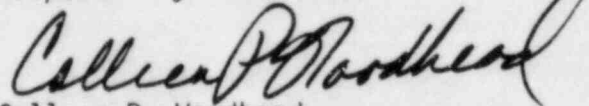
In summary, the Estimate does not establish the specific level of threat deemed credible by CBG's experts which the Board requested CBG

to provide to establish a prima facie case for litigation of Contention XX.^{6/}

IV. CONCLUSION

CBG has failed to provide expert opinion establishing the specific levels of threat of sabotage and theft against the UCLA research reactor. Without a credible level of threat established by CBG's qualified experts, CBG has not established a prima facie case for the litigation of Contention XX or a benchmark against which UCLA's security provisions might be measured.

Respectfully submitted,



Colleen P. Woodhead
Counsel for NRC Staff

Dated at Bethesda, Maryland
this 21st day of May, 1984.

^{6/} Attached to this response are the following documents recently forwarded to CBG in response to a Freedom of Information Act request: (1) SECY-82-456; (2) Memorandum to L. V. Gossick et al. from S. J. Chilk Re: Staff Requirements - Affirmation Session 79-18; (3) Memorandum to the Commissioners from W. J. Dircks, Executive Director of Operations Re: Staff Requirements - SECY-79-38. These documents appear to establish that for the generalized, non-specific assertions of threat by CBG, no significant radiological consequences are likely to occur. In view of the fact that CBG was provided these analyses showing an apparent absence of the likelihood of significant radiological consequences resulting from the generalized CBG assertions, CBG should have provided more specific threat assessments.

UNITED STATES OF AMERICA
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BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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In the Matter of)
THE REGENTS OF THE UNIVERSITY OF)
CALIFORNIA)
(UCLA Research Reactor))

DOCKETING & SERVICE
BRANCH
Docket No. 50-142

(Proposed Renewal of Facility
License)

CERTIFICATE OF SERVICE

I hereby certify that copies of "NRC STAFF RESPONSE TO THE CBG 'ESTIMATE OF THREAT' FILED MAY 1, 1984" in the above-captioned proceeding have been served on the following by deposit in the United States mail, first class, or, as indicated by an asterisk, by deposit in the Nuclear Regulatory Commission's internal mail system, or, as indicated by double asterisks, by express mail, this 21st day of May, 1984:

*John H. Frye, III, Chairman
Administrative Judge
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, DC 20555

*Dr. Emmeth A. Luebke
Administrative Judge
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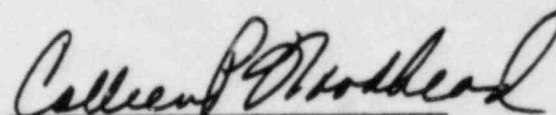
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Colleen P. Woodhead
Counsel for NRC Staff



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

PDR

Mr. Steven Aftergood
Committee to Bridge the Gap
Box 1186
Ben Lomond, CA 95005

APR 25 1984

IN RESPONSE REFER
TO FOIA-84-199

Dear Mr. Aftergood:

This is in partial response to your letter dated March 19, 1984, in which you requested, pursuant to the Freedom of Information Act, copies of five specific documents.

Enclosed are copies of the following three documents:

1. SECY-82-456 (a complete version)
2. 6/28/79 memorandum to L. V. Gossick, et. al, from S. J. Chilk re: Staff Requirements - Affirmation Session 79-18
3. 8/13/81 memorandum to Chairman Palladino, et. al, from W. J. Dircks re: Staff Requirements - SECY-79-38 "Physical Protection of Category II and III Material"

You requested the "final Commission paper" which was attached to a memorandum dated June 28, 1979, from Miller to Burnett. Both the Offices of Nuclear Reactor Regulation and Nuclear Material Safety and Safeguards had separated the memorandum from the attachment. Based upon available information, it is believed the attachment was SECY-79-187B, "Impact of the Safeguards Upgrade Rule on Non-power Reactor Licensees." Therefore, we are currently reviewing SECY-79-187B to determine what information can be publicly released.

We are also reviewing SECY-77-79 to determine what information can be publicly released. As soon as our reviews have been completed, we will be in touch with you.

Sincerely,

G. M. Felton, Director
Division of Rules and Records
Office of Administration

Enclosures: As stated

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PUBLIC DOCUMENT ROOM

November 16, 1982



SECY-82-456

RULEMAKING ISSUE
(Notation Vote)

For: The Commissioners

From: William J. Dircks
Executive Director for Operations

Subject: PHYSICAL PROTECTION REQUIREMENTS FOR NONPOWER REACTOR
(NPR) LICENSEES POSSESSING FORMULA QUANTITIES OF SSNM

Purpose: To obtain approval to publish for public comment, proposed amendments to 10 CFR Part 73. These amendments will establish physical protection requirements for nonpower reactor licensees who possess formula quantities of strategic special nuclear material.

Category: Major policy issue.

Discussion: Background

On July 24, 1979, the Commission approved a recommendation that nonpower reactor (NPR) licensees possessing formula quantities of strategic special nuclear material (SSNM) be deferred from implementing the requirements of the Safeguards Upgrade Rule (10 CFR 73.20, 73.45, and 73.46). At that time the Commission asked the staff to develop new physical protection requirements for NPR licensees that would provide comparable protection against the theft of SSNM. These new requirements were to take into account the unique safeguards considerations of facility design features and fuel type and form at NPRs. In the interim, the

CONTACT:
C. J. Withee, SGFF
427-4040

Commission stated that licensees possessing a formula quantity of nonexempt material would be subject to recently enacted Category II requirements (10 CFR 73.67(d)) as well as previously existing requirements (10 CFR 73.60) for Category I material.

On August 12, 1981 in response to SECY-81-376, the Commission approved the publication of proposed physical protection requirements regarding Category I NPRs (those possessing formula quantities of SSNM). These requirements were published in the Federal Register on September 18, 1981 (46 FR 46333) along with a minority opinion of Commissioners Gilinsky and Bradford and the separate views of Commissioner Bradford. These requirements took into account the NPR facility and fuel design, eliminated some Safeguards Upgrade Rule requirements, and maintained the 100 rem/hr exemption from physical protection requirements.

RESPONSE TO THE PUBLIC COMMENT

Twelve public comments were received which discussed specific provisions of the proposed rule. Eleven were from NFR operators who questioned one or more aspects of the proposed rule as being too restrictive or unnecessary. One commenter called for stricter requirements than those being proposed and supported the minority Commission position.

The most frequent comments were: (1) the requirements as stated were too prescriptive and did not allow for consideration of site specific features, (2) the 100 rem/hour exemption level may be difficult for some licensees to maintain and could encourage unnecessary reactor operations just to meet that level, (3) a phase in period should be allowed before full Category I requirements are necessary (i.e., when a formula quantity of SSNM becomes nonexempt), (4) licensees irradiating enough SSNM to over 100 rem/hour should only have to implement Category III physical protection measures and should be exempt from both Category I and Category II requirements, and (5) the cost estimates for implementing the proposed rule were too low.

In response to these comments, staff has extensively revised the September 18, 1981 proposed rule as follows. The Category I physical protection requirements were rewritten as performance capabilities. Also, prescriptive security measures are no longer specified, thereby allowing the licensee greater flexibility in preparing its plan. To aid the public commenters in understanding the rule's intent, scope of application, and rationale, the additional information in Enclosure B will be made available with the proposed amendments. This information is expected to serve as the regulatory position in a Regulatory Guide to be published for comment at a later date. A final version of the Guide will be published with the final rule.

Second, given the inability of all but a very few insiders to know the expected dose rate from any irradiated fuel element, the licensee will be allowed to average its irradiated fuel to meet the 100 rem/hour exemption as long as no single fuel unit drops below 50 rem/hour at 3 feet. This approach will reduce the need for a licensee to conduct reactor operations just to satisfy the exemption criterion.

Third, the revised rule allows an interim period of 90 days after a licensee no longer meets the 100 rem/hour exemption level before it has to implement full Category I requirements. However, during the interim period, some compensatory physical protection measures are required which could be less costly than the full Category I measures. This interim period can be permitted because, in most cases, as irradiated fuel decays below the 100 rem/hour average value, it does so fairly slowly.

Fourth, if a licensee can show that, for a theft of a formula quantity, it is reasonable to expect that a thief would receive an absorbed dose of at least 2000 rem, then the licensee will only have to satisfy Category III physical protection requirements. The 2000 rem dose would be incapacitating within a short period and would mean certain death. However, since the International Atomic Energy Agency (IAEA) standard is that the irradiated fuel exemption should be used to drop a facility only one material protection category and since uranium enriched above 20% could be more directly useable in a nuclear explosive device, the rule requires NPR licensees possessing a formula quantity of SSNM to satisfy at least Category II physical protection requirements when the 2000 rem exemption cannot be met.

Fifth, given the extensive restructuring of the revised proposed rule, the cost/benefit analysis was also extensively revised. This analysis is included in Enclosure C and reflects updated figures.

Differences from the Safeguards Upgrade Rule

As a result of the uniqueness of the facility design features and the type and form of fuel at NPRs, it is not necessary to require as extensive a set of physical protection measures as is included in the Safeguards Upgrade Rule. It is sufficient to require that the licensee detect an attempted theft and arrange for a response force to prevent the theft of a formula quantity of SSNM. This is acceptable in view of the fact that NPR fuel cannot be used in a clandestine fission explosive device without undergoing reprocessing to recover the uranium and this requires a large commitment of resources. Also, because the SSNM is contained in fuel elements which typically have 100-200 grams of U-235 each, the theft of a formula quantity would have to include a number of repetitive acts that require a long time to complete. Thus, there will be considerable opportunity for a response action to prevent the removal of a formula quantity from the site.

As a result of these factors, a number of prescriptive Safeguards Upgrade Rule requirements can be reduced or eliminated for protecting formula quantities at NPRs. These include the reduction or the elimination of requirements for redundant and hardened alarm stations, entrance searches for weapons and explosives, a second SNM exit search, Part 73 Appendix B Guard Training requirements and Appendix C Contingency Plans, armed guards on site, and vault hardening.

However, the proposed rule requires protection against theft by both insiders and external adversaries at security capability levels comparable to the Safeguards Upgrade Rule.

Cost/Benefit

Several benefits will be derived from implementing the proposed amendments rather than keeping the status quo. First, protection against insider theft of nuclear material will be included. This is not currently required. Second, licensees are given more flexibility in selecting a set of physical protection measures which can take maximum benefit of any site specific design features that aid security functions. Finally, except under special conditions, licensees who possess a formula quantity, regardless of its irradiation exemption status, must at least satisfy the physical protection requirements for Category II material, thereby reducing the possibility of theft of such material.

The cost comparison estimates the cost increase between implementing the proposed amendments and the measures necessary to satisfy Category II requirements. The Regulatory Analysis (Enclosure C) shows an estimated one time capital cost of \$1,100 to \$5,100 and an operating cost during one year of \$300 to \$7,900 per facility if the proposed requirements are adopted. It should be noted that, within the range of cost estimates, a low operating cost will normally match up with a high capital cost and vice versa.

While there are 15 current NPR licensees who possess formula quantities, no more than three licensees are expected to have to implement the full Category I proposed requirements and this number could very well go to zero since dose rate averaging is allowed. In addition, if any licensee is unable to keep its amount of nonexempt fuel smaller than a formula quantity, this would most likely occur only for short periods of time which are less than the 90-day interim phase-in period. For those cases, it may not be necessary to expend the full capital costs estimated above. In fact, if labor intensive procedures are used for these short periods in place of hardware, the capital cost could be avoided altogether.

Conclusion:

The revised proposed amendments are the most cost-effective approach for providing assurance against the theft of a formula quantity of SSNM, while taking into account the unique features of the facility design, and fuel type and form at nonpower reactors.

Recommendation: That the Commission:

1. Approve the revised proposed amendments and authorize publication of Enclosure A in the Federal Register for public comment.
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. This Certification is included in the enclosed Federal Register notice.
3. Note:
 - a. That the appropriate Congressional Committees will be notified of this Commission action.
 - b. That, in accordance with 10 CFR 51.5(d)(3), neither an environmental impact statement nor a negative declaration need be prepared since the proposed amendments are not significant from the standpoint of environmental impact.
 - c. That the Chief Counsel for Advocacy of the Small Business Administration will be informed of the certification and the reasons for it as required by the Regulatory Flexibility Act.
 - d. That a public announcement will be issued when the amendments are filed with the Office of the Federal Register.
 - e. That copies of this notice will be distributed to affected licensees and other interested persons by the Office of Administration.
 - f. That DOE is developing lower enriched fuels which, it is our understanding, could be substituted for higher enriched fuels in existing nonpower reactors with minimal

modifications. Approval of the recommended regulatory action should not be construed as foreclosing further future encouragement of NPR licensees to reduce their holdings of high enriched uranium once the lower enriched fuels become available.



William J. Dircks
Executive Director for Operations

Enclosure:

- A - Federal Register Notice
- B - Draft Intent and Scope Guide
- C - Regulatory Analysis

Commissioners' comments or consent should be provided directly to the Office of the Secretary by c.o.b. Friday, December 3, 1982.

Commission Staff Office comments, if any, should be submitted to the Commissioners NLT Wednesday, November 24, 1982, 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.

DISTRIBUTION:

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ENCLOSURE A

NUCLEAR REGULATORY COMMISSION

10 CFR Part 73

Safeguards Requirements for Nonpower Reactor Licensees
Possessing Formula Quantities of Strategic Special
Nuclear Material

AGENCY: Nuclear Regulatory Commission.

ACTION: Proposed Rule.

SUMMARY: The Nuclear Regulatory Commission is proposing to amend its physical protection regulations for nonpower reactor licensees possessing formula quantities of strategic special nuclear material. The proposed amendments have been prepared in response to a Commission request for the development of these new physical protection requirements. These amendments would replace the interim requirements which are currently in force at these facilities. The result of these amendments will be the most cost-effective approach for providing assurance against the theft of a formula quantity of SSNM, while taking into account the unique features of the facility design, and fuel type and form at NPRs.

DATES: Comments must be received on or before *_____. Comments received after this date will be considered if it is practical to do so, but assurance of consideration cannot be given except as to comments received on or before this date.

ADDRESSES: Comments or suggestions regarding the proposed amendments should be sent to the Secretary of the Commission, U. S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Docketing and Service Branch. Comments received will be available for examination and copying at the NRC Public Document Room at 1717 H Street, NW., Washington, DC 20555.

*Insert date 120 days after publication in the Federal Register.

Enclosure A

FOR FURTHER INFORMATION CONTACT: Dr. C. J. Withee, Fuel Facility Safeguards Licensing Branch, Division of Safeguards, Office of Nuclear Material Safety and Safeguards, U. S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone (301) 427-4040.

SUPPLEMENTARY INFORMATION

BACKGROUND

On July 24, 1979, the Commission approved a recommendation that nonpower reactor (NPR) licensees possessing formula quantities of strategic special nuclear material (SSNM) be deferred from implementing the requirements of the Safeguards Upgrade Rule (10 CFR 73.20, 73.45, and 73.46). At that time the Commission asked the staff to develop new physical protection requirements for NPR licensees that would provide comparable protection against the theft of SSNM. These new requirements were to take into account the unique safeguards considerations of facility design features, and fuel type and form at NPRs. In the interim, the Commission stated that licensees possessing a formula quantity of nonexempt material would be subject to recently enacted Category II requirements (10 CFR 73.67(d)) as well as previously existing requirements (10 CFR 73.60) for Category I material.

Under the interim requirements, some NPR licensees are permitted to provide only minimal physical protection for their fuel if enough material is irradiated to a level which qualifies for exemption under 10 CFR 73.67(b)(1)(i). The exemption is based on the deterrent effect of an external radiation dose rate in excess of 100 rem per hour at 3 feet from any accessible point without intervening shielding.

Also, under current requirements, physical protection measures only need be effective against external adversaries. Thus, insiders are not included

Enclosure A

as part of the design basis threat. However, as provided in 10 CFR Section 73.1(a)(2), insiders are part of the physical protection design basis threat for facilities possessing formula quantities of SSNM.

On August 12, the Commission approved the publication of proposed physical protection requirements regarding Category I NPRs (those possessing formula quantities of SSNM). These requirements were published in the Federal Register on September 18, 1981 (46 FR 46333) along with a minority opinion of Commissioners Gilinsky and Bradford and the separate views of Commissioner Bradford. These requirements took into account the NPR facility and fuel design and eliminated some Safeguards Upgrade Rule requirements.

Those proposed amendments (46 FR 46333) also included a statement of the staff's resolution of a number of issues which had been raised earlier. In particular, the Commission presented its finding that the existing protection exemption level of 100 rem per hour at 3 feet from any accessible surface without any intervening shielding was appropriate.

→ Several nonsubstantive clarifying and conforming amendments to the currently effective Parts 50 and 70 were also proposed in the September 18, 1981 notice. There was no public comment on these amendments and they do not modify current practices or applications of the regulations, but only clarify the text of several sections. There is no further change in those previously proposed amendments and thus they are not repeated in this notice.

RESPONSE TO THE PUBLIC COMMENTS

Twelve public comments were received which discussed specific provisions of the proposed rule. Eleven of these questioned one or more aspects of the

Enclosure A

proposed rule as being too restrictive or unnecessary. One commenter called for stricter requirements than those being proposed and supported the minority Commission position which was included in the 1981 notice.

The most frequent comments were: (1) the requirements as stated were too prescriptive and did not allow for consideration of site specific features, (2) the 100 rem per hour exemption level may be difficult for some licensees to maintain and could encourage some unnecessary reactor operations just to meet that level, (3) a phase-in period should be allowed before full Category I (i.e., when a formula quantity of SSNM becomes nonexempt) requirements are necessary, (4) licensees irradiating enough SSNM to over 100 rem per hour should only have to implement Category III (low strategic significance) physical protection measures and should be exempted from both Category I and Category II requirements, and (5) the cost estimates for implementing the proposed rule were too low.

In response to these comments, the originally proposed amendments have been extensively revised as follows. First, the Category I physical protection requirements were rewritten as performance capabilities. A description of how the licensee intends to implement the requirements will be given in the physical security plan submitted for licensing review. Site specific features will be considered before license approval is given. To aid the public commenters in understanding the rule's intent, scope of application, and rationale, additional supplementary information is available for inspection in the NRC Public Document Room, 1717 H Street, NW., Washington, DC 20555. Prescriptive security measures are no longer specified, thereby allowing the licensee greater flexibility in preparing its plan.

Enclosure A

Second, given the inability of all but a very few inspectors to know the expected dose rate from any irradiated fuel element, the licensee will be allowed to average its irradiated fuel to meet the 100 rem per hour exemption as long as no single fuel unit drops below 50 rem per hour at 3 feet. This approach will reduce the need for a licensee to conduct reactor operations just to satisfy the exemption criterion.

Third, the revised rule allows an interim period of 90 days after a licensee no longer meets the 100 rem per hour exemption level before it has to implement full Category I requirements. However, during the interim period some compensatory physical protection measures are required which could be less costly than the full Category I measures. This interim period can be permitted because, in most cases, as irradiated fuel decays below the 100 rem per hour average value, it does so fairly slowly.

Fourth, if a licensee can show that for a theft of a formula quantity it is reasonable to expect that a thief would receive an absorbed dose of at least 2000 rem, then the licensee will only have to satisfy Category III physical protection requirements. The 2000 rem dose would be incapacitating within a short period and would mean certain death. However, since the International Atomic Energy Agency (IAEA) standard is that the irradiated fuel exemption should be used to drop a facility only one material protection category and since uranium enriched above 20% could be more directly useable in a nuclear explosive device, the rule requires NPR licensees possessing a formula quantity of SSNM to satisfy at least Category II physical protection requirements when the 2000 rem exemption cannot be met.

Enclosure A

Fifth, given the extensive restructuring of the revised proposed rule the cost/benefit analysis was also extensively revised. This analysis reflects updated figures and is included in the Regulatory Analysis which is available for inspection in the NRC Public Document Room, 1717 H Street, NW., Washington, DC 20555.

Differences from the Safeguards Upgrade Rule

As a result of the uniqueness of the facility design features and the type and form of fuel at NPRs, it is not necessary to require as extensive a set of physical protection measures as are included in the Safeguards Upgrade Rule. It is sufficient to require that the licensee detect an attempted theft and arrange for a response force to prevent the theft of a formula quantity of SSNM. This is acceptable in view of the fact that NPR fuel cannot be used directly in a clandestine fission explosive device without undergoing reprocessing to recover the uranium, and this requires a large commitment of resources. Also, because the SSNM is contained in fuel elements which typically have 100-200 grams of U-235 each, the theft of a formula quantity would have to include a number of repetitive acts that require a long time to complete. Thus, there will be considerable opportunity for a response action to prevent the removal of a formula quantity from the site.

As a result of these factors, a number of prescriptive Safeguards Upgrade Rule requirements can be reduced or eliminated for protecting formula quantities at NPRs. These include the reduction or elimination of requirements for redundant and hardened alarm stations, entrance searches for weapons and explosives, a second SNM exit search, Part 73 Appendix B Guard Training requirements and Appendix C Contingency Plans, armed guards on site, and vault hardening.

Enclosure A

However, the proposed rule requires protection against theft by both insiders and external adversaries at security capability levels comparable to the Safeguards Upgrade Rule.

Cost/Benefit

Several benefits will be derived from implementing the proposed amendments rather than keeping the status quo. First, protection against insider theft of nuclear material will be included. This is not currently required. Second, licensees are given more flexibility in selecting a set of physical protection measures which can take maximum benefit of any site specific design features that aid security functions. Finally, except under special conditions, licensees who possess a formula quantity, regardless of its irradiation exemption status, must at least satisfy the physical protection requirements for Category II material, thereby reducing the possibility of theft of such material.

The cost comparison estimates the increase between implementing the proposed amendments and the measures necessary to satisfy Category II requirements. The Regulatory Analysis shows an estimated one time capital cost of \$1,100 to \$5,100 and an operating cost during one year of \$300 to \$7,900 per facility, if the proposed requirements are adopted. It should be noted that, within the range of cost estimates, a low operating cost will normally match up with a high capital cost and vice versa.

While there are 15 current NPR licensees who possess formula quantities, no more than three licensees are expected to have to implement the full Category I proposed requirements and this number could very well go to zero since dose rate

averaging is allowed. In addition, if any licensee is unable to keep its amount of nonexempt fuel smaller than a formula quantity, this would most likely occur only for short periods of time which are less than the 90-day interim phase-in period. For those cases, it may not be necessary to expend the full capital costs as estimated. In fact, if labor intensive procedures are used in place of hardware during the short interim periods, the capital cost could be avoided altogether.

The revised proposed amendments are the most cost-effective approach for providing assurance against theft of a formula quantity while taking into account the unique features of the facility design, and fuel type and form at nonpower reactors.

PAPERWORK REDUCTION STATEMENT

The application and reporting requirements contained in these proposed amendments have been approved by the Office of Management and Budget; OMB approval No. 3150-0002.

REGULATORY FLEXIBILITY CERTIFICATION

In accordance with the Regulatory Flexibility Act of 1980, 5 U. S. C. 605(b), the Commission hereby certifies that this rule will not, if promulgated, have a significant economic impact on a substantial number of small entities. This proposed rule would amend 10 CFR Part 73 to require any nonpower reactor licensee authorized to possess a formula quantity of strategic special nuclear material to submit amendments to its physical security plan. These plans would

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include certain additional security precautions that would be implemented when a sufficient amount of the licensee's irradiated fuel drops below the 100 rem per hour at 3 feet external radiation dose rate exemption level resulting in the licensee possessing a formula quantity of fuel that is not self-protecting.

At this time the proposed amendments would require only 15 licensees to submit revised security plans, and no more than three nonpower reactor licensees are expected to implement the additional security measures. The amendments probably would not affect any future licensees since they would not likely build a non-power reactor requiring a formula quantity of SSNM.

The 15 licensees include three large companies (Union Carbide Corporation, General Atomic Corporation - a subsidiary of Gulf Corporation, and General Electric Corporation), ten major universities (Georgia Institute of Technology, University of Wisconsin, Massachusetts Institute of Technology, University of Michigan, University of Virginia, Oregon State University, Virginia Polytechnic Institute, Texas A&M, University of Missouri at Columbia, and Washington State University), the National Bureau of Standards (NBS), and the Rhode Island Atomic Energy Commission. The three corporations each employ in excess of 500 employees and have annual sales in excess of \$1 million for services they provide. NBS and the Rhode Island Atomic Energy Commission are a Federal and state agency, respectively. None of these affected licensees fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act or the Small Business Size Standards in regulations issued by the Small Business Administration at 13 CFR Part 121.

Enclosure A

Hazardous materials-transportation, Nuclear materials, Nuclear power plants and reactors, Penalty, Reporting 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. 553, notice is hereby given that the NRC is proposing to adopt the following amendments to 10 CFR Part 73.

PART 73 - PHYSICAL PROTECTION OF PLANTS AND MATERIAL

1. 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, 88 Stat. 1242, as amended, sec. 204, 88 Stat. 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).

For the purposes of sec. 223, 68 Stat. 958, as amended (42 U.S.C. 2273); §§73.37(g), 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, 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, 73.72 are issued under sec. 161o, 68 Stat. 950, as amended (42 U.S.C. 2201(o)).

2. In §73.2, paragraph (x) is revised to read as follows:

§73.2 Definitions.

- * * * * *
- (x) "Special nuclear material of moderate strategic significance" means:
- (1) Less than a formula quantity of strategic special nuclear material but more than 1000 grams of uranium-235 (contained in uranium enriched to 20 percent or more in the U-235 isotope) or more than 500 grams of uranium-233 or plutonium or in a combined quantity of more than 1000 grams when computed by the equation, $\text{grams} = (\text{grams contained U-235}) + 2 (\text{grams U-233} + \text{grams plutonium})$, [are]*
- (2) 10,000 grams or more of uranium-235 (contained in uranium enriched to 10 percent or more but less than 20 percent in the U-235 isotope) [is], or
- (3) Formula quantities of strategic special nuclear material possessed at nonpower reactors.

* * * * *

3. In §73.6, paragraph (e) is revised to read as follows:

§73.6 Exemptions of certain quantities and kinds of special nuclear material.

- * * * * *
- (e) Special nuclear material at nonpower reactors. Any licensee[s] subject to ~~§73.66~~ 73.67(h) is [are] not exempted from §§73.70 and 73.72, and any licensee[s] subject to §73.67(e) is [are] not exempted from §73.72 of this part.

*Comparative text shows changes between proposed rule and current regulations. Underlined text shows additions and dashed through text in brackets shows deletions.

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4. In 73.40, Paragr. (b) is revised to read as follows:

73.40 Physical protection: General requirements at fixed sites.

* * * * *

(b) Each licensee subject to the requirements of §73.20, 73.45, 73.46, 73.50, or 73.55 [~~or 73.60~~] shall prepare a safeguards contingency plan in accordance with the criteria set forth in Appendix C to this part. The safeguards contingency plan shall include plans for dealing with threats, thefts, and radiological sabotage relating to nuclear facilities licensed under Part 50 or to the possession of special nuclear material licensed under Part 70 of this chapter. [~~By September 19, 1978,~~] Each licensee subject to the requirements of this paragraph [~~except for nuclear power plant licensees, from whom submittal is not required until March 23, 1979,~~] shall submit to the Commission for approval the first four categories of information contained in the safeguards contingency plan. (The first four categories of information, as set forth in Appendix C to this part, are Background, Generic Planning Base, Licensee Planning Base, and Responsibility Matrix. The fifth category of information, Procedures, does not have to be submitted for approval.)¹ The plan shall become effective and be followed (when appropriate) by the licensee [~~except for nuclear power plants,~~] 30 days after approval by the Commission. [~~or 200 days after March 23, 1978, whichever is later. For nuclear power plants, the plan shall become effective 30 days after approval by the Commission.~~]

* * * * *

5. Section 73.60 is removed.

Enclosure A

a. Paragraphs (b) - (c) are revised;

b. In paragraph (d), (10) and (11) are revised and a new (12) is added; and

c. A new paragraph (h) is added to read as follows.

§73.67 Licensee fixed site and in-transit requirements for the physical protection of special nuclear material of moderate and low strategic significance and of formula quantities at nonpower reactors.

* * * * *

(b) Exemptions. (1) A licensee's possession, use, or transportation of the following materials is exempt from the requirements of this section ~~[to the extent that he possesses, uses or transports]:~~ (i) Special nuclear material in a quantity not exceeding 350 grams of uranium-235, uranium-233, plutonium, or a combination thereof, possessed in any analytical, research, quality control, metallurgical, or electronic laboratory, [which is not readily separable from other radioactive material and which has a total external radiation dose rate in excess of 3 feet from any accessible surface without intervening shielding,] or (ii) Sealed plutonium-beryllium neutron sources totalling 500 grams or less contained plutonium at any one site or contiguous sites, or (iii) Plutonium with an isotopic concentration exceeding 80 percent in plutonium-238.

(2) A licensee, other than a nonpower reactor licensee who possesses a formula quantity or more of strategic special nuclear material, is exempt from the requirements of this section to the extent that it possesses, uses, or transports special nuclear material which is not readily separable from other radioactive material and which has a total external radiation dose rate in excess of 100 rems per hour at a distance of 3 feet from any accessible surface without intervening shielding.

- (3) A nonpower reactor licensee who possesses a formula quantity is exempt from the additional requirements above those for special nuclear material of moderate strategic significance to the extent that it possesses special nuclear material which is not readily separable from other radioactive material and which has a total external radiation dose rate in excess of 100 rems per hour at a distance of 3 feet from any accessible surface without intervening shielding.
- (4) During an interim period of 90 days after a formula quantity of nonexempt fuel is possessed by a nonpower reactor licensee, approved compensatory measures may be substituted for those approved on a permanent basis.
- (5) Any nonpower reactor licensee possessing a formula quantity may protect its special nuclear material at the level of low strategic significance if the expected total dose to any individual would be 2000 rems or greater during the unauthorized removal of any formula quantity from the licensee's facility.
- ~~[(2)]~~(6) A licensee, other than a nonpower reactor licensee who possesses a formula quantity or more of strategic special nuclear material, who has quantities of special nuclear material equivalent to special nuclear material of moderate strategic significance distributed over several buildings [may] shall, for each building which contains a quantity of special nuclear material less than or equal to a level of special nuclear material of low strategic significance, protect the material in that building at least at the level of [under] the lower classification physical security requirements.

(c) Each licensee who possesses, uses, transports, or ~~who~~ delivers to a carrier for transport, special nuclear material of moderate strategic significance or 10 kg or more of special nuclear material of low strategic significance, and each licensee who possesses a formula quantity of strategic special nuclear material for use in the operation of a nonpower reactor, shall:

(1) * * *

(2) Within ~~[300 days after the effective date of these amendments (March 25, 1966) or]~~ 30 days after the plan(s) submitted pursuant to paragraph (c)(1) of this section is approved, ~~[whichever is later,]~~ implement the approved security plan; or

(3) For a nonpower reactor licensee who possesses a formula quantity of strategic special nuclear material, (i) submit by * a physical security plan or an amended physical security plan describing how the licensee will comply with the requirements of paragraph (h) of this section, any compensatory measures to be used during a 90-day interim period, schedules of implementation, and methods used for determining external radiation dose rates of irradiated reactor fuel; and (ii) implement the applicable parts of the approved physical security plan submitted pursuant to paragraph (c)(3)(i) of this section by ** , or within 30 days after this plan is approved, whichever is later.

* (Insert date 150 days after effective date of these amendments.)

** (Insert date 240 days after effective date of these amendments.)

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(d) Fixed Site Requirements for Special Nuclear Material of Moderate Strategic Significance.* * *

- (10) Search on a random basis vehicles and packages leaving the controlled access areas, [end]
- (11) Establish and maintain response procedures for dealing with threats of thefts or thefts of each materials, and [-]
- (12) Notify the appropriate Nuclear Regulatory Commission Regional Administrator at least 48 hours in advance of the time the licensee expects that it will possess a formula quantity of nonexempt strategic special nuclear material.

* * * * *

(h) Additional requirements for nonpower reactor licensees possessing formula quantities of nonexempt strategic special nuclear material. Each nonpower reactor licensee who possesses, at any site or contiguous sites subject to control by the licensee, a formula quantity of nonexempt strategic special nuclear material shall meet the requirements of paragraphs (a) and (d) of this section and, in addition, shall:

- (1) Satisfy the requirements of paragraph (a)(2) of this section against a single insider and a conspiracy between insiders, as well as an external adversary, during any period when possession exceeds a formula quantity of nonexempt material;
- (2) Achieve the following capabilities in order to meet the objectives of paragraph (h)(1) of this section:
 - (i) Detect access of unauthorized personnel to strategic special nuclear material within controlled access areas situated within a protected area;

(ii) Detect unauthorized activities and conditions within the protected area and the controlled access areas:

(iii) Detect unauthorized removal of strategic special nuclear material from the controlled access areas; and

(iv) Provide for a response capability sufficient to prevent the unauthorized removal of a formula quantity of strategic special nuclear material from the protected area; and

(3) Test physical protection devices used pursuant to the requirements of this section to assure their functional performance during periods when they are required to be in use.

7. In §73.70 the introductory text and paragraph (c) are revised to read as follows:

§ 73.70 Records

Each licensee subject to provisions of §§ 73.20, 73.25, 73.26, 73.27, 73.45, 73.46, 73.55, or [~~§73.60~~] 73.67(h) shall keep the following records:

* * * * *

(c) A register of visitors, vendors, and other individuals not employed by the licensee pursuant to §§73.46(d)(10), 73.55(d)(6), or [~~§73.60~~] by a licensee required to satisfy § 73.67(h).

* * * * *

Dated at Washington, DC this _____ day of _____ 1982.

For the Nuclear Regulatory Commission.

Samuel J. Chilk,
Secretary of the Commission.

Enclosure A

ENCLOSURE B

Physical Protection Requirements for
Nonpower Reactor Licensees Possessing Formula Quantities of SSNM

73.67(b)(2)

1. Q: Besides the 2000 rem exemption, why are nonpower reactor licensees possessing formula quantities of strategic special nuclear material (Category I) not able to have physical protection requirements reduced more than one material category by using the 100 rem/hr criterion?

A: Uranium enriched above 20% is more directly useable in a nuclear explosive device (i.e., does not necessarily need further enrichment) than uranium not so enriched. Because of the high strategic significance of this type of material, we have maintained a close compatibility with the recommendation of the International Atomic Energy Agency (IAEA) in INFCIRC 225 except when the fuel is extremely self-protecting. The IAEA says that the irradiated fuel exemption should be used to drop a facility no more than one material protection category.

2. Q: Does each fuel element have to have at least a dose rate of 100 rem/hr at 3 feet to qualify for the exemption?

A. No. A licensee is allowed to apply an average value to the irradiated fuel it wishes to have qualified for the dose rate exemption. Material is exempted as long as (1) the weighted average (weighted by U-235 isotope weight) of all exempted material per CAA is at least 100 rem/hr at three feet and (2) no single fuel unit has a dose rate of less than 50 rem/hr at 3 feet.

3. Q: Must direct radiation measurement be used to show that fuel meets the 100 rem/hr exemption criterion?

A: NO. AS LONG AS A LICENSEE SUBMITTETH A REASONABLE PLAN DESCRIBING ANY NECESSARY SUPPORTING DATA FOR DETERMINING THE EXPECTED DOSE RATE, ALTERNATIVES TO DIRECT MEASUREMENT ARE ACCEPTABLE. AMONG THE ACCEPTABLE METHODS FOR DETERMINING DOSE RATES ARE:

- a) Direct measurement of the external dose rate of the material in air at a distance of 3 feet without intervening shielding;
- b) Indirect measurement with appropriate correction factors applied for intervening shielding (e.g., water); or
- c) Predicted dose rate based upon the power history and core position of the fuel element.

It is not necessary nor especially desirable that direct measurements in air be made, or that fuel be moved, solely for the purpose of measurement.

73.67(h)

4. Q: Must a licensee have equipment in place at all times in order to implement the additional Category I requirements of paragraph 73.67(h)?

A: No. The requirement is that a licensee have an approved plan which describes the measures the licensee will commit to taking if the licensee should possess a formula quantity of nonexempt fuel. This may include interim measures to be employed during the 90-day initial period as well as the permanent measures to be employed if the 90-day period is exceeded. The licensee does not have to have equipment for these additional measures installed and in place until they are needed.

A licensee should develop its plan in such a way that for an emergency, such as equipment failure, there would be enough time to set up any necessary interim protection measures before the point is reached where a formula

quantity is non-exempt. After this, the licensee will have 90 days to assess the extent of the emergency and set up any additional equipment which has been committed to on a permanent basis.

73.67(h)(1)

5. Q: Can you describe the design basis insider threat?

A: Yes. The design basis insider threat is an individual, including an employee (in any position), and a conspiracy between individuals in any position who may have: (a) access to and detailed knowledge of the facility or (b) items that could facilitate theft of special nuclear material (e.g. small tools, substitute material, false documents, etc.) or both.

6. Q: What is the meaning of "early detection" in 73.67(a)(2) as referenced by this paragraph?

A: As required under 73.67(h)(2)(iv), a licensee must arrange for a response capability to prevent the unauthorized removal of a formula quantity from the protected area. In order to meet this requirement, a detection must be "early" enough to permit a response which can satisfy the prevention requirement. The length of time available for detection will depend on the speed of the arranged response and the expected length of time it would take to steal a formula quantity.

73.67(h)(2)

7. Q: Is the heavy impact of implementing a full set of additional security measures justified where fuel should happen to slip just below the 100 rem/hr level to say 99 or 95 rem/hr, particularly when unscheduled equipment failure may have caused this?

Enclosure B

A: Because we are allowing averaging of fuel dose rates and alternative methods of determining the dose rate of fuel, there will be some uncertainty as to the exact radiation level. Also, in most cases, as fuel decays below the 100 rem/hr level, its decay rate is fairly gradual. For these reasons, a licensee will be allowed a period of up to 90 days before the full set of required security measures must be implemented. The licensee must still use measures that will accomplish the objectives described in paragraph 73.67(h)(1) during this period, but at a lower level of assurance than would be required for the long term measures. Interim measures will be approved on a site specific basis.

B. Q: Why don't I receive credit for the difficulty of processing NPR fuel to recover the uranium and for the reactor design features which make fuel difficult to steal?

A: Although studies show that reprocessing can be accomplished if sufficient resources are expended, it is still a very difficult task. Credit is given for general reactor design features and fuel reprocessing difficulty because an NPR licensee with a formula quantity of nonexempt fuel is not required to implement the full Safeguards Upgrade Rule requirements (10 CFR 73.20, 73.45, and 73.46). The following is a list of the reduction in full Category I physical protection measures that is being made for NPRs because of their general fuel and facility design features.

1. Eliminate redundant alarm stations.
2. Eliminate hardening of alarm stations.
3. Eliminate entrance searches for weapons and explosives.
4. Eliminate a second SNM exit search.
5. Eliminate Part 73 Appendix B Guard Training requirements.

6. Eliminate requirements for armed guards.
7. Reduce Contingency Plan requirements.
8. Eliminate hardening for vaults.

9. Q: Why does the rule require three capabilities: (1) detecting unauthorized access into CAAs, (2) detecting unauthorized activities and conditions in CAAs and PAs and (3) detecting unauthorized removal of SSNM?

A: The objective is to detect attempts to remove SSNM as early as possible. In order to help achieve this with high assurance, a safeguards system which provides defense in depth is essential. In addition, the resulting redundancy and diversity of capabilities helps assure that the system is not vulnerable to common mode failures or any single adversary act, such as commercial power failures or the severing of non-tampersafed alarm lines.

10. Q: What are examples of unauthorized activities and conditions?

A: Some examples of unauthorized activities are (a) failure to follow significant operating procedures, (b) someone being in a restricted area without proper authorization, or (c) moving fuel without prior approval. Some examples of unauthorized conditions are (a) a door left unlocked when it should be secured, (b) monitoring equipment that is not energized when it should be, or (c) fuel handling equipment not being secured when required.

11. Q: Does the protected area (PA) required in 73.67(h)(2) have to be inclosed by barriers of the construction defined in 73.2(f)(1) and (2)?

A: No. As stated in 73.2(f)(3) "any other physical obstruction constructed in a manner and of material suitable for the purpose for which the obstruction is intended," is acceptable. Thus, while alternatives to the

barriers described in 73.2(f)(1) and (2) are acceptable, they must have a penetration resistance which is appropriate for the type and quantity of material being protected, and taking into account the other physical protection measures present.

73.67(h)(2)(i)

12. Q: Can material be used and stored in other than a controlled access area (CAA)?

A: Only the 350 grams of material, Pu/Be sources, and Pu-238 exempted under 73.67(b) can be used outside a CAA. As required under 73.67(h)(2)(i), the licensee must be able to detect unauthorized access to SSNM other than that listed above. This can be assured only if the material is always kept in controlled areas with physical barriers and some form of intrusion detection devices or procedures.

13. Q: What types of measures could be used to detect unauthorized access to a controlled access area (CAA) or a protected area (PA)?

A: The access detection system should include physical barriers to impede an adversary's entry into the area and allow time for detection to take place. For the detection system itself some options are:

1. Alarm switches on doors into the area which are backed up by some means of detecting attempted entry through the walls. Attempted wall entry could be detected by (a) motion detectors inside the area which view the wall, or (b) periodic patrols to visually inspect the wall,
2. A motion detector inside an area which can view fuel access areas, or
3. Individuals inside the CAA who could detect unauthorized access, such as, during normal operation hours.

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It should be noted that many of the measures listed here can also satisfy some of the other capability requirements.

73.67(h)(2)(ii)

14. Q: What measures could be used to detect unauthorized activities?

A: Again some measures may be able to satisfy several capabilities. Some means of detecting unauthorized activities are:

1. Motion detectors which cover the interior space of the area,
2. Periodic patrols,
3. Appropriate use of CCTV's or observation windows which can survey the important parts of the area, or
4. Use of the two man rule inside the area.

73.67(h)(2)(iii)

15. Q: What measures could be used to detect unauthorized removal of material?

A: Some measures for detecting attempts at unauthorized removal are:

1. Motion detectors which view (a) the fuel, (b) fuel removal points such as a core plug, or (c) specialized tools, such as remote manipulators or cranes, which are necessary for fuel removal,
2. A radiation detector which is difficult to shield and has sufficient sensitivity to detect the removal of any irradiated fuel it is protecting,
3. Alarming of the special fuel removal tools mentioned above, or

Enclosure B

4. Exit searches of packages, personnel, and vehicles leaving the CAA or PA to a level sufficient to detect the physical concealment of a fuel element of given size and dimension.

73.67(h)(2)(iv)

16. Q: What steps are necessary to provide for a response capability sufficient to prevent the unauthorized removal of a formula quantity?

A: The licensee should be able to have a combination of detection times and response times which would be less than the time it would take an adversary to remove a formula quantity of material. Thus, depending on the length of detection times expected for satisfying capabilities 73.67(h)(2)(i) - (iii), the licensee will need to arrange for a response force with a sufficiently short deployment time. Simply stated, the licensee should assure that the total response time (detection plus security response) is less than the minimum time required for an adversary to remove a formula quantity of strategic special nuclear material from the facility.

17. Q: Does the response force have to be on-site and/or supplied by the licensee?

A: No. The licensee may choose to arrange with the local law enforcement agencies (LLEA) to provide the response force. In such a case, redundant or tamper indicating communications should be established for notifying the LLEA when a response is needed.

73.67(h)(3)

18. Q: Under 73.67(h)(3), when must the licensee test equipment for implementing the additional requirements of 73.67(h)?

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A: When the equipment is needed for use, it should be tested. A test should be made prior to a licensee reaching the point where a formula quantity of nonexempt material is possessed. After that, periodic tests should be made at least every 7 days to assure that the equipment is still functioning at the necessary level.

Enclosure B

ENCLOSURE C

Statement of Problem

Under currently applicable regulations, nonpower reactor (NPR) licensees possessing formula quantities of nonexempt strategic special nuclear material (SSNM) are subject to requirements relating to the physical protection of special nuclear material of moderate strategic significance (10 CFR 73.67(d)) as well as interim additional requirements (10 CFR 73.60) in place of implementing the more stringent requirements of the Safeguards Upgrade Rule (10 CFR 73.45 and 46). These interim requirements are in effect while the NRC staff determines the measures necessary to afford this material with a level of physical protection comparable to the protection provided for formula quantities of SSNM at fuel cycle facilities, while at the same time giving credit for specific facility and fuel design features that together offer intrinsic protection against theft. The new level of protection is to be commensurate with the threat posed to the public safety and health by theft of a formula quantity of this material, while providing protection actually needed at each specific site.

Potentially, there could be 15 licensees affected by the proposed amendments although no more than one to three are likely to be affected. These 15 licensees are made up of large companies, large universities, and Federal and state agencies. Consequently, under the provisions of the Regulatory Flexibility Act (5 U.S.C. 605(b)), this rule would not have a significant economic impact on a substantial number of small entities.

¹Copies of the Regulatory Analysis are being placed in the NRC Public Document room, 1717 H Street NW., Washington DC, where they will be available for public inspection and copying for a fee.

All licensees, with the possible exception of one, currently have plans on file addressing the Category II requirements which mandate that licensees have a system which will provide early detection of theft of material of moderate strategic significance. Adapting and expanding plans already on file to include measures for preventing the theft of a formula quantity of SSNM by an external adversary or insider(s) could be done to meet the requirements of the proposed rule. For most licensees, this can be accomplished by expanding procedures, with little emphasis on new capital equipment. Others may choose to install new equipment because they anticipate a more frequent need to satisfy Category I requirements (although it is unlikely that a licensee, barring unforeseen emergencies, would choose to possess a formula quantity of unirradiated fuel). By operating with fuel at an exempt level (>100 rem/hour at 3 feet or 2000 rem dose to an adversary), NPR licensees can avoid having to implement the proposed rule.

Objectives

The general goal of physical protection requirements at NPRs is to assure that the public health and safety will not be threatened due to the theft of a formula quantity of SSNM. The objectives are to detect an attempted theft of material and protect against theft through appropriate response. Concurrently, the aim is to not burden licensees with overly restrictive measures which might unnecessarily inhibit their operation (e.g., research, instructional, etc.). In meeting the objectives, the new rule continues to give some safeguards credit for fuel irradiated above 100 rem/hour since it provides a certain deterrence against theft.

Alternatives

Regulatory options considered for placing physical protection requirements on NPRs licensees possessing formula quantities of nonexempt strategic special

nuclear material ranges from allowing the opportunity for no requirements based on fuel exemption, up to requiring implementation of all of the Safeguards Upgrade Rule measures.

After this consideration, staff developed recommended amendments which (1) protect against insider theft of nuclear material, (2) give the licensees much greater flexibility in selecting a set of physical protection measures, and (3) take maximum benefit of any NPR and fuel design features that provide intrinsic safeguards, which help achieve protection levels comparable to the Safeguards Upgrade Rule. These amendments are provided as an alternative to maintaining the status quo. Thus, the two alternatives can be stated as follows:

- 1) Status quo.
- 2) Implement the revised proposed amendments to protect against theft by the insider, conspiracy between insiders, and the external adversary.

The current regulations are given in 10 CFR 73.60 and 73.67(d). The recommended reform amendments can be summarized as containing the following requirements:

- o Detect access of unauthorized personnel to strategic special nuclear material within the protected area and the controlled access areas;
- o Detect unauthorized activities and conditions within the protected area and the controlled access areas;
- o Detect unauthorized removal of strategic special nuclear material from the controlled access areas; and
- o Provide for a response capability sufficient to prevent the unauthorized removal of a formula quantity of strategic special nuclear material.

Enclosure C

It is not necessary, and highly unlikely, that a licensee would choose to use equipment and operating procedures which both fall at the high cost end of their respective ranges.

It should be remembered that no more than three licensees are expected to have to implement the full Category I proposed requirements and that this number could very well go to zero. In addition, if any licensee is unable to keep its amount of nonexempt fuel smaller than a formula quantity, this would most likely occur only for short periods of time which would be less than the 90 day interim period. For those cases, it would not be necessary to expend the full capital costs estimated above. In fact, if labor intensive procedures are used for these short periods instead of hardware, the capital cost might be avoided altogether.

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fuel and then only for short periods of time. This number could very well go to zero when licensees are allowed to average the dose rate of all fuel qualifying for the self-protecting exemption.

In developing the cost figures, a typical set of physical protection measures was established which were representative of an average current NPR licensee covered by this rulemaking action. Because the great majority of current licensees maintain an exemption from Category I requirements and have NRC approved or have submitted plans at the Category II level, the typical set of physical protection measures will only satisfy Category II requirements. Two sets of physical protection measures were drawn up which could satisfy the Category I requirements contained in the revised proposed amendments. The sets included measures for both irradiated and unirradiated fuel. One set was capital equipment intensive and one set was personnel intensive.

The estimated additional cost per facility for implementing the revised proposed amendments above the requirements of Category II are given in Table 1.

Table 1

Estimated Additional Cost Per Facility
to Implement the Revised Proposed Amendments

<u>Type of Measures Employed</u>	<u>One Time Capital Equipment Expenditure</u>	<u>Operating Cost During One Year</u>
Personnel Intensive	\$1,100 - \$1,400	\$5,300 - \$7,900
Capital Equipment Intensive	\$2,500 - \$5,100	\$300 - \$1,000

In addition, because of the design features and fuel form and form at Category I NPRs, changes from the Safeguards Upgrade Rule requirements (i.e., 10 CFR 73.45 and 73.46) were possible. These include elimination of redundant and hardened alarm stations, entrance searches for weapons and explosives, a second SSNM exit search, Part 73 Appendix B Guard Training requirements, armed guards on site, and vault hardening.

Cost/Benefit

To give the estimated costs a proper perspective, they must be weighed against the benefits which will result from adopting the revised proposed amendments instead of keeping the status quo. These benefits are listed first and are as follows: 1) protection against theft by insiders and a collusion of insiders will be added to the protection already given against theft by external adversaries, 2) by replacing the prescriptive requirements of 73.60 with performance capability requirements, the licensee is given much greater flexibility in selecting cost-effective physical protection measures which make optimum use of any inherent site specific features, 3) the combination of physical protection requirements and unique features of NPR fuel and facility design provides a level of protection comparable to that of the Safeguards Upgrade Rule, and 4) except for cases when the fuel is extremely self-protecting, all NPR licensees possessing a formula quantity must protect it at least to the level required for Category II material (moderate strategic significance), thereby reducing the likelihood of a theft of a formula quantity of SSNM.

There are currently 15 NPR licensees who possess formula quantities of SSNM and thus could potentially be subject to the proposed Category I requirements, if they are unable to keep their amount of nonexempt fuel below a formula quantity. With current levels of operations, it is conservatively estimated that no more than one to three of these 15 would ever have a formula quantity of nonexempt

Enclosure C

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MEMORANDUM FOR: Chairman Palladino
Commissioner Gilinsky
Commissioner Bradford
Commissioner Ahearne
Commissioner Roberts
FROM: William J. Dircks
Executive Director for Operations
SUBJECT: STAFF REQUIREMENTS - SECY 79-38 "PHYSICAL PROTECTION
OF CATEGORY II AND III MATERIAL"

Background

In a memorandum from the Secretary dated June 28, 1979, the Commission requested the staff to identify alternative approaches for the possible further strengthening of Category II and III safeguards in six specific areas. They are: protection against sabotage, prevention of thefts, more balanced protection against the insider as well as outsider threats, protection of Category II and III materials in transit, exit controls for low enriched uranium (LEU) facilities, and the potential need for protection of plutonium without regard to quantity. The staff, with technical assistance from the DOE national laboratories, has considered these issues in some depth.

Category II Materials In Transit

In regard to the need for improved protection during the time Category II materials are in transit, the staff has responded to the Commission's request with two rules which have strengthened intransit protection of Category II materials. One rule has been published in final form and the other has been published for public comment.

Technical Considerations of the Other Issues

In examining the other issues, the staff has found no technical evidence to support an increase in the present physical security requirements. This is primarily due to the type, form and quantities of nuclear material in Categories II and III. These findings are detailed in the attachment. A summary of the technical considerations is given below.

Without further enrichment, or irradiation and reprocessing to produce plutonium, the low enriched uranium (enriched to 5% or less in the isotope Uranium-235) used at Category III facilities to fabricate fuel elements for light water cooled reactors cannot be used to make a clandestine fission explosive (CFE).

The material found at other Category II/III facilities is mainly in the form of fuel elements for nonpower reactors (NPRs), scrap or encapsulated material which are unattractive targets for terrorist thefts. Some of the nonpower reactor fuel is TRIGA type fuel which has been judged beyond the technical capabilities of a subnational group to reprocess. The other reactor fuel either has been irradiated and is kept relatively inaccessible in a reactor core or is stored in small quantities in locked storage facilities. Even though the material is not an attractive target for CFE fabrication, it is presently protected to a level that would provide early detection of a theft or attempted theft.

Additional protection against sabotage or the dispersal of plutonium would not be justified since the potential consequences to the public health and safety possibly arising from these events would be no greater in magnitude than those which might occur from the use of unregulated chemical or biological agents. The problem of sabotage of fuel in NPRs has been found to be minimal. A Los Alamos National Scientific Laboratory study concluded that only one reactor has any potential of a dangerous radiological release from an act of sabotage and that reactor does not operate with either the frequency or at the power levels necessary for it to cause a public health and safety problem.

The absence of a need for additional physical protection of Category II/III facilities--to prevent rather than just detect theft or to protect against the insider--is based upon two primary considerations. First, as discussed above, the Category II/III material subject to theft is generally perceived to be much less desirable in terms of quantity and quality than the Category I material available at fuel cycle facilities. Secondly, the necessity of committing thefts at two or more Category II/III facilities in order to obtain a formula quantity of SSIP would require a large conspiracy for successful coordination of the multiple thefts. There is no intelligence that such a threat against these facilities exists and if such a threat did develop it would be difficult to coordinate without detection.

Conclusion

In view of the foregoing considerations, the staff has determined that no formal rulemaking actions are necessary.

f (Signed) E. Kevin Cornell

William J. Dircks
Executive Director for Operations

Enclosure: Summary of Staff
Positions on Further Category
II/III Rulemaking Issues

cc: SECY
OGC
OPE

SUMMARY OF STAFF POSITIONS ON
FURTHER CATEGORY II/III RULEMAKING ISSUES

1. Protection Against Sabotage

It appears that only irradiated material could possibly be an attractive sabotage target where Category II/III material is concerned. Nonpower reactor facilities represent the worst case situation among Category II/III fixed site facilities. A recent study of the sabotage potential at existing nonpower reactors concluded that most such reactors are air coolable and would immediately fall below criticality in the case of a sabotage attempt causing loss of coolant, the most serious type of accident that could occur in a reactor. Only one currently licensed SMW tank type reactor was found to have a potential for a core meltdown event, due to its unique design. Such a meltdown could possibly generate a release of radioactive contaminants into the surrounding environment. However, due to limitations on the amount of material found in the cores of even the largest nonpower reactors, a significant amount of material would not be released. The potential consequences of such a release were found to be no greater than that could be caused by malevolent use of unregulated chemical explosives. A staff investigation disclosed that this reactor operated typically at much lower than authorized power levels so that meltdown could not occur except possibly during brief periods when the reactor operated at the maximum authorized power level. The staff is continuing to monitor the sabotage potential at this facility, but since the problem has been reduced to only one reactor, resolution of any continuing concern could be handled through licensing actions rather than a rulemaking action.

2. Prevention of Theft

The existing Category II/III physical protection requirements depend on early detection of a theft in order to prevent the adversary from obtaining a formula quantity of SSNM through multiple thefts from two or more facilities. The staff was asked to determine if preventive measures might also be needed at Category II/III facilities. It might be argued that coordinated simultaneous attacks on two or more facilities by adversary groups operating independently could possibly defeat the purpose of the early detection strategy. The staff believes, however, that an adversary group possessing the capabilities needed to simultaneously attack different facilities in order to obtain a formula quantity would find Category II/III facilities relatively unattractive targets.

First, the predominant type of material at Category II/III facilities is nonpower reactor fuel, most of which is irradiated and poses a personal radiation hazard to unauthorized persons who might attempt to remove it. This same radiation permits aerial detection of such fuel, using existing high technology mobile equipment, following possible unauthorized removal. This irradiated material is usually in a reactor pool adjacent to or in

Enclosure

the core. It is very time consuming to remove worthwhile quantities of fuel, especially by unauthorized persons, since special tools or heavy equipment are required to gain access to the material. The fresh (unirradiated) fuel at a nonpower reactor site is usually stored in a vault or other locked storage facilities.

Two types of fuel are present at nonpower reactor facilities. TRIGA type fuel is judged to be beyond the technical capabilities of subnational groups to reprocess and would be of little use to the adversary. MTR type fuel which is irradiated emits radioactive gases during reprocessing which would be very easy to detect from long distances and would most probably lead to detection of the reprocessing site before a formula quantity of CFE useable material could be generated. If the adversary sought to reprocess only unirradiated fuel, the limited amount of material available through thefts from two or three different facilities would impose severe limitations on the adversaries' chances of fabricating a practical CFE device. It would also require greater technical expertise on the part of the adversary in producing a CFE device from the limited amount of material which would be available.

Finally a multiple theft strategy by the adversary would require an unlikely conspiracy of insiders involving employees at two or more different facilities. The insiders must provide detailed information identifying the target material and its location, determining how to bypass alarms, and ascertaining the means of delaying detection of the attempts until all thefts are completed. There is no evidence that such a threat against these facilities exists and if it did develop the success of the conspiracy would be difficult because of the coordination problems and the high risk of premature discovery.

3. More Balanced Effectiveness Against the Insider

As previously discussed, a successful plan for multiple thefts from Category II/III facilities would require an unlikely conspiracy, spanning several different facilities, that would be quite difficult to coordinate. The nature of the material at most Category II/III facilities is such that an insider would be needed to identify the target material. Technical knowledge would be needed to differentiate it from material which may be similar in appearance but irradiated so as to present a significant personal radiation hazard. Also, insiders would be needed to identify the locations of intrusion detection equipment and possibly deactivate such equipment prior to the theft attempt. Failure to make these preparations would result in significant delays in one or more of the multiple theft attempts intended to occur simultaneously, to the extent that the risk of detection and apprehension of the adversaries by the authorities would become too high. Because each of the target facilities is unique in construction and layout, insiders familiar with each of the facilities would be needed.

The probability of an insider at one facility making contact with a potential insider from another facility to form a conspiracy without arousing suspicion appears very low. Thus specific measures to protect against insiders at Category II/III facilities would not be warranted.

4. Exit Controls for LEU Facilities

The Commission requested the staff to determine whether or not exit controls for LEU facilities should be required. Such a requirement appears to be unjustified. No significant amount of LEU could be removed from a Category II/III facility in a series of thefts over a period of a year without being detected through normal process controls or existing physical security measures. Although one theft of a small amount of material occurred in the past (General Electric - Wilmington, N.C.), the theft did not pose a significant risk to the public health and safety. Unirradiated LEU does not pose a radiological or toxicological hazard to the public and is not capable of direct use in a CFE device. The Wilmington theft was, in fact, detected by plant personnel following normal process procedures. The major impact of the theft was embarrassment to the licensee, which resulted in the licensee's voluntary upgrading of physical security at the site to decrease the probability of another similar theft. The time required for an adversary to convert LEU into CFE useable material, and the resources needed for this processing, mitigate significantly the need for any additional physical protection. There is no likelihood that this processing could be done without taking the material out of the country to a nonweapons state whose government materially supported the attempt to convert the LEU into weapons useable material. However, it is apparent that a nonweapons state could more easily obtain LEU from legitimate sources in greater quantities.

5. Protection of Plutonium Without Regard for Quantity

It was determined in NUREG-0170 that the consequences of dispersion of Category II/III quantities of plutonium would be at a maximum of the same order of magnitude as for malevolent use of chemical explosives, and would be small compared to a nuclear explosion. Also, an adversary intent on malevolent dispersion of a hazardous substance could obtain biological or chemical agents from unregulated sources which would have substantially higher consequences than dispersion of plutonium in Category II/III quantities. Furthermore, the amount of Pu in the licensed sector is small and is primarily found in the form of sealed sources which would be difficult to disperse. No additional information has become available to date that would indicate additional physical protection measures are warranted to protect specifically against possible malevolent dispersion of plutonium in Category II/III quantities.

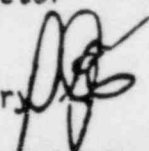
UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

June 28, 1979



30/1/79 - ACTION
Cys: Gossick
Rehm
RJones
CNulsen
Shaper
Denton
Donoghue
Bird
Shea
Ryan
Stello
Hutton
Haller
Hayden

MEMORANDUM FOR: Lee V. Gossick, Executive
Director for Operations
Leonard Bickwit, Jr.,
General Counsel
Carlton Kammerer, Director
Congressional Affairs
Joseph J. Fouchard, Director
Public Affairs

FROM: Samuel J. Chilk, Secretary 

SUBJECT: STAFF REQUIREMENTS - AFFIRMATION SESSION 79-18,
2:20 P.M., THURSDAY, JUNE 21, 1979, COMMISSIONERS'
CONFERENCE ROOM, D. C. OFFICE
(OPEN TO PUBLIC ATTENDANCE)

I. SECY-A-79-41 - SEABROOK SEISMIC SHUTDOWN AND REDESIGN PETITION
(CONSENT CALENDAR ITEM)

The Commission, by a vote of 4-0*, approved an order which denies Ms. Elizabeth Weinhold's request for suspension of construction at Seabrook until the facility and its cooling system is redesigned to meet stricter seismic standards, and defers review of the seismic question addressed in ALAB-442.

(Subsequently, the Secretary signed the order on June 22, 1979.)

II. SECY-78-682A - REVISION OF NRC REGULATIONS GOVERNING THE OWNERSHIP OF STOCKS, BONDS, AND OTHER SECURITY INTERESTS BY NRC EMPLOYEES
(CONSENT CALENDAR ITEM)

The Commission, with all Commissioners concurring except as indicated below, approved the Federal Register Notice containing the text of a final rule, subject as above, to include the following major provisions:

- a. All NRC employees would be covered by the Commission's security ownership prohibitions, except for clerical and most administrative personnel. All employees GS-13 and above would be covered regardless of position. Commissioner Bradford dissented and indicated he would apply the security ownership prohibition to all NRC employees.
- b. The security ownership prohibition would extend to the NRC employee, the employee's spouse, minor children and any other member of the employee's household.
- c. NRC employees subject to the security ownership prohibitions would be prohibited from owning stocks, bonds or other securities

*Chairman Hendrie has previously disqualified himself from participation in this matter.

issued by:

- (1) publicly or privately owned utilities which have filed an application with the Commission seeking authorization to construct or operate a facility which generates electric energy by means of a nuclear reactor, and those utilities which have received a construction permit or an operating license from the Commission. Commissioner Bradford dissented indicating that he would prohibit employees from owning securities in any electrical utility;
 - (2) companies manufacturing or selling nuclear power or test reactors;
 - (3) architectural-engineering companies providing services to applicants for Commission facility permits or licenses, and architectural-engineering companies which have filed standard reference designs;
 - (4) fuel cycle applicants or licensees (milling, converting, fabricating, reprocessing.)
- d. NRC employees would be given 365 days to sell prohibited security interest once it appears on the prohibited list. Until an employee sold the stock, he could not work on matters affecting that entity.
- e. Employees would be required to certify compliance with the security ownership prohibitions within thirty days after commencement of NRC employment and annually thereafter.
- f. With respect to entities not covered by the security ownership prohibitions, employees could not work on matters affecting that entity if the individual and members of his household held security interests exceeding \$1,000 in value. Commissioner Bradford dissented, stating he would prohibit employees from working on any matters in which they have a financial interest, regardless of the amount. Chairman Hendrie would have preferred a \$5,000 deminimus rule but accepted \$1,000.

The Commission, by a vote of 3-2, with Chairman Hendrie, and Commissioners Kennedy and Gilinsky voting as a majority, disapproved a proposed provision that NRC employees be prohibited from owning stocks, bonds, or other securities provided by any company or firm which serves as a consultant on activities licensed or regulated by the NRC. Commissioners Bradford and Ahearne dissented, stating that they would prohibit NRC employees from owning stocks issued by consulting firms which have been designated by the Commission because of their significant involvement in the commercial nuclear industry.

In connection with his approval of the Federal Register Notice (except as noted above), Commissioner Bradford provided the following comments:

- a. "The exemption of the Licensing Board members who are affiliated with Union Carbide should be addressed in a separate SECY paper where additional information would be provided on the amount of stock involved and the degree to which Union Carbide has fuel cycle business.
- b. OGC notes that component suppliers could have a large financial interest in the nuclear field. I suggest that OGC look into this issue to see whether the rule should be further amended to prohibit ownership in companies who are primarily component suppliers to nuclear projects. This issue may be addressed in a separate SECY paper."

In taking this action, the Commission requested that:

- a. The Federal Register Notice be revised as necessary to reflect the Commission decision and forwarded to the Office of Government Ethics, OPM, for approval.
(Subsequently, the Federal Register Notice was forwarded to the Office of Governmental Ethics, OPM, on 6/21/79).
- b. The separate views of Commissioner Bradford be included in the statement of considerations.
(Subsequently, this action was completed on 6/21/79.)
- c. Prepare a response to the comments of Commissioner Bradford as mentioned above in connection with his approval of the Federal Register Notice. (OGC) (SECY Suspense: 10/16/79)

III. SECY-79-38 - PHYSICAL PROTECTION OF CATEGORY II & III MATERIAL
(CONSENT CALENDAR ITEM)

The Commission, by a vote of 5-0*, approved for publication in the Federal Register the amendments to 10 CFR Parts 70, 73, and 150, subject to the following modifications to the wording of § 73.47, paragraphs 2(i) and 2(ii):

- (2) To achieve these objectives, the physical protection system shall provide:
 - (i) Early detection and assessment of unauthorized access or activities by an external adversary within the controlled access area containing special nuclear material.
 - (ii) Early detection of removal of special nuclear material by an external adversary from a controlled access area.

In taking this action, the Commission requested that:

- 1. the amendments become effective 120 days after publication in the Federal Register;

*Although voting in favor of the amendments (as revised), Commissioner Gilinsky would have preferred that the modifications to the wording of §73.47, paragraphs 2(i) & 2(ii) include the word "promptly" in lieu of "early," and would have deleted the phrase "by an external adversary".

2. the extent to which the subject rule meets the requirements of INFCIRC/225 be noted in the Supplementary Information part of the Federal Register Notice;
(SD/NMSS)
3. each affected licensee be provided notification of this action, and a copy of the Federal Register Notice;
(~~SD~~/NMSS)
4. the appropriate Congressional committees be informed of this action; (~~DOE~~) SD/NMSS
5. a public announcement be issued when the notice is filed with the Office of the Federal Register; (OPA)
6. clearance of the record keeping requirements by the General Accounting Office be obtained prior to the rule becoming effective; (ADM)
7. the value/impact assessment be placed in the Public Document Room. (SD/NMSS)

In addition, the staff is requested to identify for Commission consideration alternative approaches for the possible further strengthening of Category II and III safeguards in the following areas: (NMSS)

- Protection against sabotage [SECY Suspense: 7/20/79]
- Prevention (as well as detection) of theft [SECY Suspense: 10/1/79]
- More balanced effectiveness against insider as well as outsider threats [SECY Suspense: 2/1/80]
- Protection of Category II and III materials in transit [SECY Suspense: 7/18/79]
- Exit Controls for areas containing low-enriched uranium [SECY Suspense: 9/14/79]
- Potential need for protection of plutonium without regard to quantity [SECY Suspense: 10/1/79]

With regard to materials in transit, the staff should submit for Commission consideration an analysis of any need for such protection and a corresponding staff recommendation. This analysis is to include as an alternative a draft proposed NRC rule along the lines of the DOE order for protection of Category II material in transit.

Additionally, lessons learned from the recent incident that occurred at the GE-Wilmington facility (SECY-79-164), and emerging Commission action on revision to the operating assumption concerning the relative risk of

fabricating clandestine fissionable explosives (SECY-79-213) should be taken into account in preparing the aforementioned reports.

IV. SECY-A-79-51, 51A and 51B - REQUESTS FOR HEARING PURSUANT TO THE COMMISSION'S ORDER OF MAY 7, 1979, IN THE MATTER OF SACRAMENTO MUNICIPAL UTILITY DISTRICT (RANCHO SECO FACILITY)
(CONSENT CALENDAR ITEM)

The Commission, by a vote of 5-0, approved an Order in the subject matter, as revised by their comments.
(Subsequently the Secretary signed the Order on June 21, 1979.)

cc:
Chairman Hendrie
Commissioner Gilinsky
Commissioner Kennedy
Commissioner Bradford
Commissioner Ahearne
Acting Director, Policy Evaluation