



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

OFFICE OF THE  
COMMISSIONER

September 7, 1984

Dr. Thomas H. Pigford  
Reactor Administrator  
Department of Nuclear Engineering  
University of California  
Berkeley, California 94720

Dear Dr. <sup>Tou</sup>Pigford:

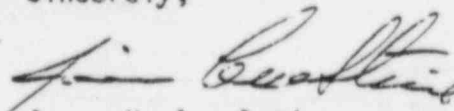
I would like to take this opportunity to thank you for a very informative briefing and tour of the research reactor at Berkeley. I found our discussions to be very helpful for my consideration of the Commission's proposed rule to limit the use of highly enriched uranium in domestic research and test reactors. I have enclosed a copy of the proposed rule for your information. The comment period has been extended until November 2, 1984. The Commission would appreciate any comments you may have on the proposal.

The proposed rule defines HEU as fuel in which the weight percent of U-235 in the uranium is 20% or greater. Low enriched uranium is fuel in which the weight percent of U-235 in the uranium is less than 20%. I checked on this point when I returned to Washington, and found that the information I had given you on this was incorrect. You may want to comment on this point.

The Commission is presently considering guidance to the staff on upgrading physical security requirements at nonpower reactors. As it presently stands, concrete barriers are not being considered.

I would also like to thank you for a delightful lunch and tour of the Berkeley campus. Please let me know the next time you will be in Washington, so I can return the favor.

Sincerely,

  
James K. Asselstine

Enclosure: As stated

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NUCLEAR REACTOR LABORATORY  
AN INTERDEPARTMENTAL CENTER OF  
MASSACHUSETTS INSTITUTE OF TECHNOLOGY



O.K. HARLING  
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L. CLARK, JR.  
Director of Reactor Operations

September 5, 1984

The Honorable Nunzio J. Palladino, Chairman  
United States Nuclear Regulatory Commission  
Washington, D.C. 20555

Subject: Improved Security for Non-Power Reactors

Dear Chairman Palladino:

Massachusetts Institute of Technology desires to comment on information regarding physical security at non-power reactors (NPR's) presented by the Nuclear Regulatory Commission staff at the annual meeting of the National Organization of Test, Research and Training Reactors (TRTR) in August 1984. The information presented by the staff relates to potential requirements for improved physical security capabilities for NPR's, specifically those reactors possessing high enriched uranium (HEU) subject to Category II requirements (10 CFR 73.67(d)).

The information presented at the meeting consisted of "Proposed Improved Capabilities" and listed the following:

- Impede unauthorized removal of SSNM
- Detect both unauthorized penetrations and activities
- Protect against theft by a single insider
- Provide tamper-indication on detection systems
- Detect attempts to prevent assessment of alarms
- Improve communications capability to LLEA
- Arrange for at least one, armed LLEA respondent
- Reduce fresh HEU fuel inventory as low as practicable

MIT considers that the proposed improved capabilities constitute acceptable security requirements, if they are reasonably interpreted, reasonably applied, and particularly if they are adopted as an alternative to the potential requirement for the conversion of high enrichment uranium (HEU) fuel to low enrichment uranium (LEU) fuel. However, it is believed that they represent only marginal improvement over MIT's present security plan, which meets the requirements of 10 CFR 73.67(d), which has been approved by NRC, and which is considered fully adequate to limit the diversion risk to acceptable levels. This is especially true because MIT maintains its inventory of unirradiated fuel at very much less than the maximum of 5 Kg

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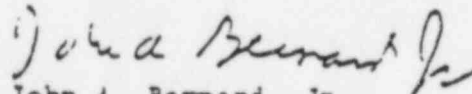
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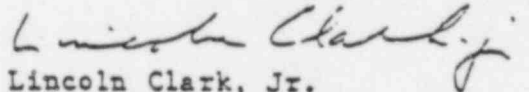
permissible under 10 CFR 73.67(d) except just prior to refueling; theft of fuel by a single insider, alone or with external help, is not feasible; and the dose rate from its irradiated fuel exceeds the self-protecting 100 rem/hour at one meter by two orders of magnitude or more.

With regard to the above proposed improved capabilities, it is not possible to be specific until the precise wording of a proposed rule is published. Until such time, MIT's comments must be considered tentative and, in any event, they apply to MIT only. We cannot speak with regard to the impact of such new rules on other reactors, since we necessarily lack knowledge regarding their security plans, but it appears that the rules would not seriously affect MIT if, as mentioned above, they are reasonably interpreted and applied.

Sincerely,



John A. Bernard, Jr.  
Reactor Superintendent



Lincoln Clark, Jr.  
Director of Reactor Operations