



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

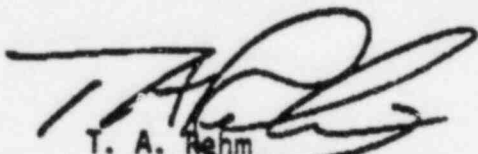
February 3, 1984

NOTE TO: Samuel J. Chilk
Office of the Secretary

FROM: T. A. Rehm
Assistant for Operations, EDO

SUBJECT: PROPOSED RULE ON HEU

Attached is a minor revision to provide
for improved clarity and some small corrections.


T. A. Rehm
Assistant for Operation, EDO

Attachment:
Draft Memo to Dircks
fm Chilk re: Development
of Proposed Rule on HEU at
Domestic Research Reactors
and Interim Security Measures

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20586

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MEMORANDUM FOR: William J. Dircks
Executive Director for Operations

FROM: Samuel J. Chilk
Office of the Secretary

SUBJECT: DEVELOPMENT OF PROPOSED RULE ON HEU AT DOMESTIC
RESEARCH REACTORS AND INTERIM SECURITY MEASURES

By memorandum dated June 21, 1983, I reported that the Commission agreed that a proposed rule be developed to implement the Commission's policy for reduction of the use of high enriched uranium (HEU) at domestic research reactors. The Chairman also requested that the staff brief the Commission on the matter before extensive effort was expended in developing the proposed rule. These briefings were held on December 19, 1983, January 27, and February 6, 1984. You are requested to proceed expeditiously with development of the proposed rule.

A. Proposed Rule on HEU at Domestic Research Reactors

In addition to the provisions set out in the memorandum of June 21, 1983, the proposed rule should, to the extent feasible, minimize the licensing burden that could result. Consideration should be given to including in the rule an automatic provision of existing licenses to cover conversion to LEU if prescribed conditions are met. Those conditions should assure that present safety margins are not significantly reduced. To this end the staff should act promptly to initiate the technical base needed to support generic findings relative to conversion.

The Commission wishes to review two options:

- a. A rule requiring the conversion to LEU fuel of all licensed research and training reactors other than those exempted because of a unique purpose. Under this option, reactors that replace fuel would be required to replace such fuel with low enrichment uranium fuel as the replacement fuel is available. The schedule for such replacements shall be developed by the Director of NRR who will coordinate such actions with DOE. If a suitable replacement fuel is not expected to be available within the overall schedule for the DOE RERTR program, the rule shall provide for replacement of HEU with fuel of enrichment as close to 20% as practical. For reactors that would not otherwise expect to require the acquisition of new fuel during the term of their license, a schedule shall be developed by the Director of NRR to provide for as prompt conversion to LEU as is reasonable. The schedules for conversion shall take into account such factors as: scheduling of shipping casks, replacement fuel fabrication, financial support, and reactor usage. These schedules will be coordinated with DOE.

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- b. A rule similar to the option developed above, but restricted to those reactors that expect to acquire new fuel during the term of their license should also be developed.

On the basis of information presented at the briefing on December 19, 1983, it is anticipated that a small number of reactors may be considered as serving "unique purposes" and be permitted to continue use of HEU.

For the purposes of this rule, "unique purpose" should account for such characteristics as neutron flux levels and energy spectrum specifically designed to facilitate research on irradiations not readily performed elsewhere in the U.S. The Director of NRR should determine whether the reactor has a "unique purpose."

B. Interim Security Measures at Domestic Research Reactors

Staff should also investigate physical protection requirements applicable during the interim preceding the completion of conversion to LEU. Since nearly all nonpower reactors possessing high enriched fuel currently implement the Category II physical protection requirements of 10 CFR 73.67 (a), these should be addressed before the proposed Category I nonpower amendments are made final. Staff should assess the impact and benefit of alternative measures to be added to the Category II requirements to increase the level of protection at these facilities. The alternatives should include the following:

1. Reduce Holdings of Fresh HEU Fuel at Nonpower Reactors
2. Tamper-Proof Detection Systems and Provide Line-Supervision
3. Assure Presence of Two-Persons During Access to Material
4. Improve Communications Capability
5. Provide Access Barriers over the Reactor Core

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Staff shall also investigate whether Interim Category I requirements should be amended:

1. To require submittal for NRC review and approval of the specific measures that the licensee would apply to meet the requirements of 10 CFR 73.60; and
2. To require licensees which apply the 100 rem/hour at 3 feet exemption, to meet only Category II requirements, to demonstrate how they determine that radiation levels are above the level stipulated in the exemption; and
3. To require licensees to notify the NRC at least 48 hours before they expect a change in requirement category.

Upon completion of the above efforts, staff should propose a program to the Commission for the implementation of any improvements deemed necessary. Work on the final rule for theft at Category I nonpower reactors (the permanent rule replacement to 10 CFR 73.60) shall be deferred and a schedule for completion of that effort should be included when staff presents its proposals for Category II changes.

Samuel J. Chilk
Office of the Secretary