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HAROLD M. AGNEW
President

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Mr. James K. Asselstine
Commissioner
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Jim:

Following up on today's telephone conversation I am presenting herewith additional material on my concerns about the consequences of the Commission's proposed rule on conversion from HEU to LEU for non-power reactors.

I am quite concerned that this proposed rulemaking will fail in its espoused international objective and through incumbent costs, borne mainly by existing facilities (the order of $1-million or more per facility), will do great harm to the already beleaguered U.S. research community, consisting of government, university, and privately-owned facilities. We further believe that it is an unreasonable policy which causes only NRC licensed facilities, despite costs, to cease their utilization of HEU while no such requirement is mandated upon reactors operated by the government agencies.

It is paramount that NRC's policy for reducing enrichment in existing non-power reactor fuels follow these precepts.

1. Immediate conversion of HEU to LEU should not be required for existing U.S. reactors.

2. If and when a change to LEU is required, it should be done in moderate steps, e.g., at normal refueling periods, upon major facility upgrade involving core redesign, or at construction of a substantially new reactor facility, and

3. Licensees shall not be exposed to significant relicensing processes or associated costs as a result of replacing HEU fuels with LEU fuels to meet a national objective and shall be protected to the extent possible from intervenor actions.

We believe that precepts 1 and 2 should be NRC policy for a number of reasons.

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(a) It is evident that no government agency or collective group has been or is now currently willing to fund directly the subject reactor conversions especially when considering the nebulous benefits and the pressing need for funds in other more tangible projects, many of which are carried out by universities throughout the nation; clearly reserve unirradiated HEU fuel should be kept in properly guarded storage.

(b) The HEU fuel in the reactor can be protected to the level required until it is normally replaced with LEU. The targeted 31 facilities all have some degree of access to campus police, local law enforcement agencies, or other armed forces.

(c) A substantial number of the faclities will be required to refuel with LEU in the normal course of operations. In the case of TRIGA reactors, no HEU fuels are expected to be available. Further, presuming NRC's initiative is supported by other government agencies, DOE should not responsibly supply HEU fuels to their facilities or to benefactor universities.

(d) It has been demonstrated by past rulemaking efforts that affected licensees are willing to provide required levels of physical protection to protect against the theft or diversion of a significant quantity of SNM.

On the latter point, licensees are justifiably apprehensive of the NRC position on the 100 Rem/hr at 3 ft "self-protection" limit for each and every fuel element when dozens of fuel elements are required to form a formula quantity. To prevent a facility from being construed as Category I (full protection required) when a single in-core fuel element falls below the above radiation limit, we recommend that the Commission promptly move forward with the completion of the previously published 10 CFR 73.67(d) rulemaking which allows the 100 Rem/hr self protection criteria to be averaged over a significant quantity of HEU (a quantity of one kilogram has been suggested). It is noteworthy that some licensees have placed additional locking devices around and over the reactor cores and that the added physical protection measures have involved a few tens of thousands of dollars rather than the $1-2 million required to convert a low power reactor to LEU fuel.

Precept 3 is required to protect the licensee against exceptional costs associated with licensing. The minimum licensing fee is $41,300 which is waived for universities but not for industrial, non-power reactor owners. The SAR to support a license change is costly both for universities and industrial owners and is estimated to require a man-year level of effort. Further, the Commission should adopt a change in its rules so that licensees can utilize LEU fuels in lieu of HEU fuels subject to a satisfactory finding under 10 CFR 50.59 and a satisfactory finding by DOE or NRC (perhaps on a generic basis) that such use of LEU fuel will involve no adverse affects to the reactor, its environs, or the public. Every effort

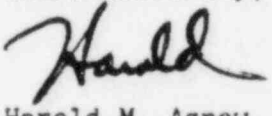
must be made by the Commission to assure that its actions in this rule-making do not lead to intervenor actions, which can be very time consuming and expensive to the licensee. An estimate of the costs to implement the rule (without costs due to intervenors) is set forth in the Appendix.

Recognizing the sensitivity surrounding the utilization of HEU in the international non-power reactor community, GA Technologies has cooperated fully with the NRC, DOE, and other government agencies by developing a fully acceptable LEU fuel that not only replaces HEU TRIGA fuel but can be used in many instances as a replacement for HEU MTR plate-type fuel. We are so confident of the performance of this LEU fuel that we have discontinued the sale of any fuel enriched to greater than 20 percent in U-235 since 1979. End of life demonstration testing of this fuel is continuing under the DOE-sponsored RERTR Program.

I urge you and the other commissioners to consider the many details of the matter under consideration so that undesirable consequences can be forestalled.

Thank you for your consideration of this material. It was good to talk to you and hope to see you out here soon.

Yours sincerely,



Harold M. Agnew

HMA:WLW:hc

Attachment:
Appendix A

APPENDIX: Costs to Implement HEU to LEU Core Conversion

It may be useful to point out that industrially owned non-power reactors (five in number) have costs associated with the proposed rule on LEU fuel, some of which are not normally borne by university reactor owners because of their DOE support. On the other hand, these costs are real for all non-power reactor owners and are part of the total costs for the proposed rule.

Item	Cost
i. Core replacement	$1-2M
ii. SAR to support license Amendment (~1 man year)	~100k
iii. License Amendment Fee	41.3k
iv. Shipping HEU core to disposal*	50-75k
v. Reprocessing cost for HEU core.*	≥525k
credit for residual HEU	200k-400k
Total costs	$1.72-2.75M
Credits	$0.200-0.4M

The average cost of about $2M per facility to implement the rule will result in a total cost for this program of about $64M for 31 facilities.

*GA Technologies had direct experience in 1982 with shipping several hundred spent TRIGA fuel elements to burial and/or processing.