DOCKET NUMBER
PROPOSED RULE PR-50 (49FR27769) (29)

University of Notre Dame
Notre Dame, Indiana 46556

Aerospace and Mechanical Engineering

Telephone 239-5430
Area Code 219

August 31, 1984

DOCKETED
USNRC

'84 SEP -4 A11:48

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Attention: Docketing and Service Branch

Dear Sir:

This letter is written to express my concerns, both as an individual and as Past-Chairman of the Education Division of the American Nuclear Society with regard to the proposed (Federal Register, Vol. 49, No. 131, pp. 27769-27772) change to 10CFR Part 50.

My concerns arise from the Commission's haste to draft and issue a rule with regard to conversion of University Research Reactors from HEU to LEU fuels without fully considering the impact of the proposed rule or alternative actions which may more effectively meet the concerns which gave rise to the proposed rule.

Commission policy, as set forth in NUREG-0885, I believe, calls for a systematic evaluation of risks and benefits associated with a proposed generic rulemaking. The proposed rule, in my view, warrants a more systematic look at the impacts and social costs of the proposed action and a more careful evaluation of possible alternative actions.

The cost-benefit analysis contained in the Regulatory Analysis supporting the HEU/LEU rulemaking has been described by some NRC staff as inadequate, an assessment with which I fully agree. Some other points which were raised with only casual and unsubstantiated discussion in staff presentations are:

1. The probable loss of several U.S. research reactors due to an inability to fund the expense of extended litigation provoked by the conversion to LEU. The social impact of such a loss could involve a reduction in the number of training facilities and programs available in the United States with a concomitant reduction in the number of students in those programs. (This at a time when NRC and INPO studies estimate a need for more than 5,000 trained people for replacement and upgrading of operating staffs in U.S. power reactors.) The resulting curtailment of both physical and medical research programs in the U.S. may accelerate the development of these capabilities offshore, a development which may not be in the national interest.

   The case of the UCLA reactor research reactor provides an example of what to expect in this regard. After lengthy relicensing hearings with no decision, and the specter of this HEU/LEU conversion before them, University authorities decided to close the reactor. It is my understanding that the Committee

DS16
Add: William R. Lahs
113055

Acknowledged by card 9/5/84

1/0

to Bridge the Gap, which intervened in opposition to the UCLA license, has pledged to challenge all university reactors applying for relicensing.

2. From a risk assessment point-of-view, a prudent national policy to limit the flow of highly enriched material would devote maximum effort and resources to those situations where the amounts of material involved are largest and the levels of shipping and handling are high. A qualitative ranking of HEU uses and users suggests that low-power research reactors are at the bottom of such a list, with medium-power university reactors next lowest. A near-term changeover from HEU to LEU fuel in small research reactors may indeed "set a good example". It will not, however, reduce the diversion risks from the much larger inventories and material flows associated with larger, non-university reactors. These risks, it appears, will continue for several years (possibly four or five), regardless of the timing required of domestic university reactors. This consideration indicates a need to reevaluate the pace (in some cases, the need) for conversion to LEU. It is important that these conversion efforts not divert the staff and resources of DOE, NRC, and the State Department from the much larger non-domestic risks.

3. One of the apparent motives for NRC action in this area is the rise in terrorist activity and the postulation of highly coordinated, internationally supported, terrorists with substantial resources. Terrorists might have as objectives any combination of five items:

   a. personnel casualties;

   b. facilities damage;

   c. dispersion of radioactive material;

   d. diversion of HEU fuel; and

   e. symbolic activities aimed at raising and manipulating public alarm.

   I suggest that the proposed conversion to LEU fuel does not address or significantly impact items a through d, and appears to enhance the attractiveness of item e.

4. A systematic risk evaluation of potential diversion from small research reactors by a neutral, but well-informed, panel appears to me to be a necessary prelude to any rulemaking. A policy of

reducing the tonnage flows of HEU in international commerce appears prudent, since the amounts of material in some single shipments and single locations appear to be more than ample to make one or more nuclear explosive devices. The implication, however, that domestic research reactors present a comparable risk deserves a more careful evaluation. (Note that low power research reactors contain only a fraction of the amount of material required to make a plausible nuclear explosive.) The paper of Dr. E. L. Zebroski, "Relative Diversion Exposures of HEU: Relation to University Reactors", presented at the June 1984 meeting of the American Nuclear Society explores this question of relative risk in some detail.

5. It may be that the Commission has substantiated information on risk exposures which are not known to universities, and which provide a sufficiently compelling basis for the "as soon as technically practical" guideline provided to the staff for conversion to LEU fuel. If such compelling evidence exists (particularly since conversion does not actually address most of the risks), I believe it proper that the Commission and/or appropriate security agencies share this information with effected members of the university community (on a classified basis if necessary). If such compelling evidence does not exist, it is appropriate for the Commission and its staff to more carefully investigate the alternative actions and impacts noted above.

6. The $15 million expense, presumably to be funded by DOE, for HEU/LEU conversion envisioned in NUREG/CR-3666 will have no discernable educational benefit. The same amount used to upgrade obsolescent university laboratories would have a major impact on the quality of engineering education in this country. Absent the compelling evidence mentioned in 5 above, the Commission should not only consider whether the proposed measures are possible, but also whether they represent a reasonable use of scarce federal and university funds.

In addition to the $15 million expense for physical conversion, it is simply impossible to estimate the legal expense of the associated relicensing, but it is likely to be of the same order of magnitude. Intervenor groups opposed to nuclear energy utilization in any form have demonstrated their ability to cause licensing proceedings to stretch on for years. This is an expense which universities are simply unable to meet.

I request that the Commission not accept the proposed HEU/LEU rule published for public comment. When all costs are weighed against the few benefits of the proposed rule there is no justification for its adoption.

Sincerely,

John W. Lucey
Associate Professor

JWL:slj