

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20545

August 9, 1984

MEMORANDUM FOR: Chairman Palladino
Commissioner Roberts
Commissioner Asselstine
Commissioner Bernthal
Commissioner Zech

FROM: Carlton Kammerer, Director
Office of Congressional Affairs

SUBJECT: LLOYD SUBCOMMITTEE TO HOLD HEARING ON HEU/LEU
FUEL CONVERSION

We have received advance notice that the Subcommittee on Energy Research and Production of the House Committee on Science and Technology plans to hold a hearing on Research Reactor Fuel Conversion. This hearing is scheduled for Tuesday, September 25, 1984 at 2 P.M. The Commission will be invited to appear or send a designee. Also attending will be the State Department, DOE, National Bureau of Standards, General Atomic, Babcock and Wilcox, and the National Organization of Research and Test Reactors.

The principal issues to be discussed are:

- Whether conversion is necessary for national safety reasons, international policy reasons, or both; and
- Who should pay the cost of conversion.

We will forward the letter of invitation as soon as we receive it.

cc: EDO
OPE
OGC
SECY
RES.

Tom:

The Subcommittee has requested that we provide R. Harris as a witness. He is from Rensselaer and served as chairman of the LEU study group. This group prepared NUREG/CR-3666 for NRC. Please see that the staff contacts Harris to arrange for his presence at the hearing E/26

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OCA: Kammerer

COMPL DEADLINE

9/14/84

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DATE OF DOCUMENT

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OF

☐ CHAIRMAN☐ EXECUTIVE DIRECTOR

OTHER

TO:
CommissionersDESCRIPTION ☐ LETTER ☒ MEMO ☐ REPORT ☐ OTHERLloyd Subcommittee to hold hearing on
HEU/LEU Fuel Conversion on 9/25/84

SPECIAL INSTRUCTIONS OR REMARKS

PRIORITY

1. I assume that Minogue will testify -
not clear yet. Testimony to be
written by RES in any event. Suspense
to EDO 9/14/84.

2. RES also arrange for Harris attendance
advise Reha if difficulties as soon as
possible.

J. Davis
manuscript
CC-50

ASSIGNED TO

DATE

INFORMATION ROUTING

Minogue, RES

8/10/84

Dircks
Roe
Rahn
Stello
~~Cavis~~
Denton
Shea
Cunningham

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CHARTER

HEARING ON "CONVERSION OF UNIVERSITY RESEARCH REACTORS TO LOW-ENRICHED URANIUM"

September 25, 1984

Purposes

The purposes of this joint hearing of the Subcommittees on Energy Development and Applications and Energy Research and Production are to (1) examine the need for and potential impact of requiring owners of research and test reactors to convert from highly enriched uranium (HEU) to low-enriched uranium (LEU) fuel; (2) identify the progress of the Department of Energy's (DOE) program on LEU fuel; (3) review the DOE's goals for the University Reactor Fuel Assistance Program; (4) assess the readiness of the LEU fuel vendors to provide the required fuel; and (5) identify who should pay for such conversions, if required.

Background

In the U.S., there are 36 Department of Energy (DOE) research and test reactors, three reactors of other government agencies, 23 university reactors, and five private reactors which utilize HEU (enrichment 70% or greater) fuel. The U.S. provides the bulk of the HEU used worldwide in research, training, and test reactors other than those supplied by the Soviet Union. About 1100 kilograms (kg) of HEU are used annually for this purpose (600 kg export, 500 kg domestic), and it has been estimated that more than four metric tons of HEU are in circulation at any given time. Concerns about potential theft or nuclear proliferation involving diversion of some of this HEU led the Nuclear Regulatory Commission (NRC) to issue a policy statement in August 1982 expressing its support for conversion to LEU (enrichment less than 20%). This position has been criticized as unnecessary by some university representatives.

On August 6, 1984 (49 FR 27769-27772), the NRC published a proposed rule "Intended to reduce the risk of theft or diversion of HEU fuel used in non-power reactors and the consequences to public health, safety and the environment from such theft or diversion." Under the proposed rule:

- The NRC will not issue a construction permit for a new non-power reactor that would use HEU fuel unless the applicant demonstrates that the proposed reactor will have a "unique purpose" that "cannot reasonably be accomplished without the use of HEU fuel."
- Each licensee currently authorized to possess and use HEU fuel (I) could not acquire any more of it, so long as acceptable LEU fuel was available, and (II) would be required to replace all HEU fuel in their possession with LEU fuel on an NRC-approved schedule.
- Research reactors which could not technically convert to LEU would be required to use fuel as close to 20% enrichment as possible.
- Within 12 months after the effective date of the rule, licensees now authorized to use HEU fuel would be required to develop and submit to the NRC's Director of the Office of Nuclear Reactor Regulation a proposed schedule for conversion to LEU fuel.

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Only the university reactors, the private reactors, and the National Bureau of Standards reactor are licensed by the NRC; these account for about 10% of the HEU shipped. The university reactors could be strongly affected by the proposed NRC rule. A major concern is that several university reactors may close down if the rule is implemented due to the cost of conversion to LEU. In its background information accompanying the proposed rule, the NRC noted that "NRC shares the licensees' expressed view that conversion costs should largely or entire [sic] be financed by the Federal Government. Historically, the DOE and its predecessor agencies have provided significant support to research and test reactor programs. The availability of Federal support will be a key factor in determining the availability of LEU fuel and schedules for conversion."

Other financial considerations are the potential costs of safety reviews and/or relicensing litigation required during the reactor conversion process. In fact, on June 14, 1984, the University of California at Los Angeles announced it had decided to permanently shutdown a research reactor it had operated since 1960 after spending more than four years trying to relicense it.

The Committee on Science and Technology's Energy subcommittees have jurisdiction over two DOE programs that specifically impact the conversion issue. The Subcommittee on Energy Development and Applications has jurisdiction over the University Reactor Fuel Assistance program, while the Subcommittee on Energy Research and Production has jurisdiction over the Reduced Enrichment for Research and Test Reactors (RERTR) program.

The University Reactor Fuel Assistance program provides fuel for university research reactor facilities. The fiscal year 1985 DOE request was \$1.9 million to provide fuel for up to 6 university research reactors. During consideration of the DOE FY 1985 authorization bill, the Committee added \$1.25 million to the program to enable university reactor operators to commence studies which could lead to the utilization of LEU fuel. The House and Senate Appropriations Committees agreed with this position in their consideration of the FY 1985 Energy and Water Development Bill (Public Law 98-360) which provides \$2,000,000 "for low-enriched uranium at university research reactors and to comply with the House report requirement" that the Department of Energy "report to the Committee by January 31, 1985 on this situation and include proposals to address it in the Fiscal Year 1986 budget."

The RERTR program, managed by the Argonne National Laboratory, has the objective of demonstrating the feasibility of the new LEU fuels to replace existing HEU fuel without significant changes to existing reactor cores or facilities, or significant decrease in performance characteristics of the reactors." According to the NRC, current information "indicates that conversion of several non-power reactors from HEU fuel to LEU fuel is technically feasible, and if the goals of the RERTR program are successfully achieved over the next five years, will be technically feasible for almost all the remaining reactors." However, some reactors require HEU fuel to produce radiopharmaceuticals and precision neutron beams for research purposes.

Witnesses from the NRC, Department of State, DOE, affected licensees, and other knowledgeable parties will be invited to testify during this hearing. A list of likely witnesses is attached.

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LIKELY WITNESSES

Panel 1: Commissioners of the Nuclear Regulatory Commission

Panel 2: Other Government Witnesses

DOE (RERTR and University Reactor Fuel Assistance programs), the NRC Advisory Committee on Reactor Safeguards (safety considerations), and the Department of State (nuclear proliferation concerns)

Panel 3: Licensees and Others

Dr. A. Francis DiMeglio (director of the University of Rhode Island's reactor and spokesman for the university operators of U.S. research reactors), the National Bureau of Standards (operator of the only government-owned and -operated research reactor licensed by the NRC), a spokesperson for one of the five private reactors which use HEU fuel (probably Westinghouse or Union Carbide), and Edwin Zebroski of the Electric Power Research Institute.

Panel 4: Vendors

Babcock & Wilcox and GA Technologies, Inc. on LEU fuel availability