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NUCLEAR REGULATORY COMMISSION

February 10, 1978 WASHINGTON, D. C. 20555 SECY-78-82

INFORMATION REPORT

For: The Commissioners

From: James R. Shea, Director
Office of International Programs

Thru: for Executive Director for Operations

Subject: STATE LETTER ON HEU EXPORTS

Purpose: To inform the Commission of the subject letter.

Discussion: State's response to my letter of December 28, which transmitted comments by Commissioners Gilinsky and Bradford on the Department's proposed memorandum to Dr. Brzezinski regarding proposed exports of significant quantities of HEU, is attached for your information.

In brief, the letter confirms information we provided you previously on the proposed exports to South Korea and Romania and discusses HEU exports for breeder development programs.

for James R. Shea, Director
Office of International Programs

DISTRIBUTION
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Enclosure:
As stated

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NATIONAL SECURITY INFORMATION
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SUBJECT TO GENERAL DECLASSIFICATION SCHEDULE OF EXECUTIVE ORDER 11652 AUTOMATICALLY DOWNGRADED AT TWO YEAR INTERVALS AND DECLASSIFIED ON DEC. 31 1984 (Insert year)

U.S. NRC Declassification Review	
1ST REVIEW – DATE: 20250609 REVIEWER: 3591 AUTHORITY: ☐ DC ☑ DD 2ND REVIEW – DATE: 20250609 REVIEWER: 3470 AUTHORITY: (DD)	DETERMINATION [CIRCLE NUMBER(S)] 1. CLASSIFICATION RETAINED 2. CLASSIFICATION CHANGED TO: _____ 3. CONTAINS NO NRC CLASSIFIED INFO 4. COORDINATE WITH: _____ (5) DECLASSIFIED 6. CLASSIFIED INFO BRACKETED 7. OTHER (SPECIFY):

DEPARTMENT OF STATE

Washington, D.C. 20520

BUREAU OF OCEANS AND INTERNATIONAL
ENVIRONMENTAL AND SCIENTIFIC AFFAIRS

February 3, 1978

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Mr. James R. Shea, Director
Office of International Programs
Room 6700 - MNBB
Nuclear Regulatory Commission
7735 Old Georgetown Road
Bethesda, Maryland

Dear Mr. Shea:

This is in response to your letter to Dr. Nye of December 28, 1977 transmitting comments by Commissioners Gilinsky and Bradford on the Department's proposed memorandum to Dr. Brzezinski regarding pending applications for the export of significant quantities of highly enriched uranium.

As you are aware, the policy of the Administration with regard to exports of HEU is that the U.S. will meet its existing commitments while working to 1) reduce HEU inventories abroad and 2) identify projects and facilities for which conversion to low enriched uranium is technically and economically feasible, and encouraging HEU recipients to undertake conversion in such cases. In regard to the Korean export application, prior to receipt of your letter, on the basis of our further assessment that the Republic of Korea's needs for HEU at this time were considerably more limited than indicated in their request, we deleted this case from those applications being recommended to the President for approval. However, we have included the Romanian case in this package, with an expanded discussion of the special circumstances relating to this proposed export (see enclosure).

With regard to the proposed exports of HEU for use in fueling the Rapsodie and KNK-II reactors, for which we have also recommended Presidential approval, both the Rapsodie and KNK-II reactors are developmental stages in

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their countries' fast reactor programs. The Rapsodie is used primarily in the evaluation of the performance of new types of liquid metal fast breeder reactor fuels. The KNK-II is a prototype liquid metal cooled, fast neutron spectrum nuclear power plant. It has been used in support of the FRG's LMFBR developmental program, but is not actually a breeder reactor.

I would note that the Administration has not terminated research and development of liquid metal fast breeder reactors, which continues at several sites, the principal facility being the Fast Reactor Test Facility in Hanford. In fact, during the London Economic Summit, President Carter advised our close allies, including France and the FRG, that we do not intend to prevent others from developing breeder reactors since we ourselves will continue breeder development, although we will not move toward commercial reprocessing or construction of a demonstration breeder.

In this regard, the U.S. breeder research program has been restructured to give greater priority to alternative designs which are more proliferation resistant. The French and Germans are also investigating alternative LMFBR fuel cycles through their participation in INFCE. The Rapsodie and KNK-II fast reactors, while related to LMFBR development, are considered equally essential in the testing and evaluation of alternative LMFBR cycles. In recognition of this situation, the DOE is in the process of broadening the scope of existing bilateral agreements with the French and Germans on advanced reactor cooperation to encompass research on safer alternatives to the LMFBR.

In light of the foregoing, it is our belief that the continued operation of facilities such as Rapsodie and

KNK-II is fully consistent with the Administration's policy and is analagous to the U.S. fast breeder development effort which the Administration is supporting.

I trust the foregoing adequately covers the areas on which Commissioners Gilinsky and Bradford have expressed concern.

Sincerely,

Louis V. Nosenzo
Deputy Assistant Secretary

Enclosure:
As stated.

ROMANIA

Facility	Quantity of Material Requested
TRIGA-14 megawatt-thermal Steady State Reactor (SSR) Institute of Nuclear Technologies Romania State Committee for Nuclear Energy Pietesti, Romania	51.5 Kg. U-235 @ 93%

Fuel Converter/Fabricator: General Atomic Company, United States

Quantity of Unirradiated HEU (Kgs. of U-235) Excluding Current Request

	In Country	At Facility
On Hand	0	0
To Be Delivered	0	0
Totals	0	0

Justification of Need for HEU at This Time

The SSR, which is expected to become operational within the next several months, will be used for long-term testing of power reactor fuel and fuel assembly components as part of Romania's comprehensive program to develop its own power reactor fuel fabrication capability. The reactor will be used to improve fuel fabrication techniques based on the experimental test results. It is designed for flexibility of core arrangements to accommodate various experiments and in the production of radioisotopes.

The decision to permit US supply of this reactor and fuel was made in 1971, with the concurrence of the Assistant to the President for National Security Affairs and with the relevant Congressional committee (Joint Committee on Atomic Energy). Supply of the reactor and fuel has also been approved by COCOM.

The quantity of material requested in the pending export license application is for the reactor's initial fuel loading plus an additional twenty fuel assemblies for refueling the reactor periodically over about a two-year period of operation. The Executive Branch will recommend to the NRC that the quantity to be exported initially under the license be limited to 38.675 kilograms of U-235, which is sufficient for the initial core plus six spares, approximately a one to two-year's supply. The remainder of the material will be shipped when actually needed. This export will place Romania in the category of countries possessing more than 15 kilograms of unirradiated U-235 contained in highly-enriched uranium.

Steps Taken to Determine the Possibility of Converting the Facility to Use of Fuel of Lower Enrichment

Department requested information from the manufacturer of the reactor and its HEU fuel as to whether fuel of a lower enrichment could be substituted for this proposed export. In response, the manufacturer stated that it has guaranteed both the core lifetime and the reactor thermal flux. Failure to achieve either of these guarantees, which are dependent upon use of HEU fuel, would result in financial penalties.

Subsequently, the Argonne National Laboratory was requested to assess the feasibility of using lower-enriched fuel in this reactor. Argonne reported that it would be possible to use fuel of an enrichment (somewhere between 50 percent and 93 percent U-235) but this would cause substantial fuel cycle cost increases in relation to use of 93 percent fuel. Furthermore, such lower enriched fuel, at the present state of fuel development, could not meet the "length of core life" guarantee that the manufacturer has extended in connection with this export.

We plan to conduct a detailed analysis of the possibility of modifying the reactor to use lower enriched uranium fuel. We hope to complete this analysis and related discussions with the facility operators involved within a period of about two years.

Executive Branch Agency Views

All concerned Agencies recommend approval of this export license application.

Approve_____

Disapprove_____