

February 13, 1998

For: The Commissioners

From: Carlton R. Stoiber, Director /s/
Office of International Programs

SUBJECT: PROPOSED "SUBSEQUENT ARRANGEMENT" TO AUTHORIZE ARGENTINA TO RECOVER AND USE FOR MEDICAL ISOTOPE PRODUCTION, TWO KILOGRAMS OF U.S.-SUPPLIED, UNIRRADIATED HIGH ENRICHED URANIUM (HEU)

PURPOSE:

To obtain the Commission's approval of a proposed response to the Department of Energy (DOE).

BACKGROUND:

DOE has forwarded for NRC review a proposed "subsequent arrangement" request from Argentina (Attachment 1) for approval to recover, process and use up to two kilograms of previously-supplied, unirradiated HEU for the production of medical isotopes. U.S. approval is being sought pursuant to the terms of the U.S.-Argentina Agreement for Peaceful Nuclear Cooperation (the Agreement) concluded in 1996.

Section 131 of the Atomic Energy Act of 1954, as amended, requires the Department of Energy to obtain the concurrence of the Department of State and to consult with the NRC, the Arms Control and Disarmament Agency and the Department of Defense, before entering into a proposed subsequent arrangement. The Secretary of Energy must then make a written determination, noticed in the *Federal Register*, that the subsequent arrangement will not be inimical to the common defense and security. The NRC staff, in its review of proposed subsequent arrangements, applies the same tests to the proposals that we would apply in the case of direct exports. In respect to a proposed use of U.S.-supplied HEU, the provisions of AEA Section 134, parts a. and b., are especially relevant.

Contact: S. Schuyler-Hayes, OIP/NEMR
415-2333

Under the 1992 Schumer amendments to the Energy Policy Act (Section 134 of the AEA), the Commission is permitted to issue a license for the export of HEU to be used as a fuel or target in a nuclear research or test reactor only if, in addition to any other requirement of the Atomic Energy Act, the Commission determines that --

- (1) there is no alternative nuclear fuel or target enriched in the isotope U-235 to a lesser percent than that of the proposed export, that can be used in that reactor;
- (2) the proposed recipient of that uranium has provided assurances that, whenever an alternative nuclear reactor fuel or target can be used in that reactor, it will use that alternative in lieu of HEU; and
- (3) the United States Government is actively developing an alternative nuclear reactor fuel or target that can be used in that reactor.

The phrase "alternative nuclear reactor fuel or target" is defined to mean a fuel or target enriched to less than 20 percent in the isotope 235. The phrase "can be used" is defined to mean that the fuel or target has been qualified by DOE's Reduced Enrichment Research and Test Reactor (RERTR) Program, and the use of the fuel or target will permit the majority of ongoing and planned experiments and isotope production to be conducted in the reactor without a large percentage increase in the total cost of operating the reactor.

STATUS OF ARGENTINE PARTICIPATION IN THE RERTR PROGRAM

Attachment 2 summarizes Argentina's participation in the U.S. RERTR Program. During the 1980's, as a result of its participation, Argentina successfully converted its RA-3 research reactor to low enriched uranium (LEU) and began to sell LEU research reactors to other countries. The 1987 RERTR Conference was held in Buenos Aires in 1987. A new phase of U.S.-Argentine cooperation specific to the development of an LEU target for medical isotope production is under discussion.

STATUS OF SAFEGUARDS AND PHYSICAL PROTECTION IN ARGENTINA

On March 4, 1994, Argentina, Brazil, the ABACC and the IAEA entered into an agreement for the application of IAEA safeguards on all source and special nuclear material in their nuclear activities. The IAEA Board of Governors concluded that this agreement was compatible with the NPT. Argentina then ratified the NPT on February 10, 1995. Argentina also ratified the Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (Tlateloco Treaty) and waived into force Article 28 of the Treaty on January 18, 1994.

The IAEA Annual Report covering 1996 states that, with the exception of the DPRK situation [IP note: the situation has nothing to do with Argentina], "...the Secretariat did not find any indication that nuclear material which had been declared and placed under safeguards was diverted for any military purpose or for purposes unknown, or that safeguarded facilities, equipment or non-nuclear material were misused. All the items which had been declared and placed under the Agency safeguards remained in peaceful nuclear activities or were otherwise adequately accounted for."

With regard to physical protection, a physical protection evaluation was performed during a U.S. team visit to Argentina in July 1996. The conclusion of that review was that Argentina's physical protection program is consistent with the recommendations of IAEA INFCIRC/225/Rev.3.

DISCUSSION:

The 1996 Agreement for Cooperation between the U.S and Argentina requires U.S. approval before Argentina may alter, in form or content, any U.S.-supplied HEU (or other nuclear material under the Agreement). (Older Agreements generally placed such prior-approval requirements only on irradiated material, but new agreements cover both irradiated and unirradiated material.) In the present case, Argentina has requested permission to recover up to two kilograms of unirradiated HEU from research reactor fuel fabrication activities and to refabricate it as targets for medical isotope production in the RA-3 research reactor.

In association with this request, DOE has recently proposed establishing a Sister Laboratory cooperation between the Argonne National Laboratory (which provides U.S. technical management of the RERTR Program) and the Comisión Nacional de Energía Atómica, focusing on the production of molybdenum-99 from LEU.

To help assure consistency of the proposed subsequent arrangement with the controls in Section 134, the U.S. Department of State has negotiated with the Argentine Ministry of Foreign Affairs a proposed exchange of diplomatic letters (Attachment 3), to be concluded in the near future, which would make clear certain commitments, as follows:

1. Unirradiated HEU transferred pursuant to the Agreement or used in or produced through the use of material or equipment so transferred in Argentina may be altered in form or content for the purpose of recovering and processing uranium, including through the cleaning of precipitated uranium from filters, for the production of medical isotopes.
2. Whenever a LEU target is qualified by the relevant authorities and does not result in a large percentage increase in the total cost of operating a reactor, including necessary associated equipment, for the production and processing of medical isotopes, such an alternative LEU target will be used in lieu of an HEU target after required equipment has been installed and the necessary licenses have been obtained.
3. In order to facilitate a smooth transition to the use of LEU targets, the U.S. and Argentina will cooperate in a program to develop LEU targets that can be used to produce medical isotopes.

The diplomatic notes are designed to effectuate a generic advanced consent to allow alteration in form or content of all U.S.-supplied unirradiated HEU scrap for fabrication of targets.

These commitments and Argentina's nuclear nonproliferation guarantees provide the basis for the Department of Energy's conclusion that the proposed subsequent arrangement is not inimical to the common defense and security.

COORDINATION:

EDO concurs in this paper. OGC has no legal objection.

RECOMMENDATION:

That the Commission approve the response to DOE at [Attachment 4](#), indicating no objection to the proposed subsequent arrangement, contingent on the completion of the proposed exchange of diplomatic notes.

Carlton R. Stoiber, Director
Office of International Programs

- Attachments:
1. Faxed memo from T. Lee, dated 1/14/98
 2. Faxed memo from T.Lee, dated 1/27/98
 3. Fax/Draft Exchange of Letters with Argentina from F. McGoldrich dated 1/21/98
 4. [Letter from R. Hauber to C. Fitzgerald](#)

NOTE: TO BE MADE PUBLICLY AVAILABLE WHEN THE FINAL SRM IS AVAILABLE

ATTACHMENT 4

Ms. Cherie P. Fitzgerald
Director
International Policy and Analysis Division, NN-42
Office of Arms Control and Nonproliferation
Department of Energy
Washington, D.C. 20585

Dear Ms. Fitzgerald:

The Nuclear Regulatory Commission has reviewed and does not object to the proposed "subsequent arrangement" subject to the Agreement for Cooperation with Argentina to alter in form or content of up to 2 kilograms of unirradiated high enriched uranium for the purposes of recovering and

processing uranium for the production of medical isotopes, upon conclusion of the exchange of diplomatic notes.

Sincerely,
Ronald D. Hauber, Director
Nonproliferation, Exports and Multilateral Relations
Office of International Programs