

# POLICY ISSUE NOTATION VOTE

November 29, 2001

SECY-01-0217

**FOR:** The Commissioners

**FROM:** Janice Dunn Lee, Director  
Office of International Programs

**SUBJECT:** **APPLICATION TO AMEND LICENSE XSNM03171 FOR THE EXPORT OF HIGH ENRICHED URANIUM TO CANADA TO CONTINUE PRODUCING MEDICAL ISOTOPES USING THE NRU REACTOR**

**PURPOSE:**

To obtain Commission review and approval of Transnuclear, Inc.'s (Transnuclear) application (Attachment 1) to amend NRC export license XSNM03171 by:

- (1) increasing the quantity of high enriched uranium (HEU) authorized for export to the NRU reactor (NRU) at Chalk River Laboratories (CRL) in Canada from 10.05 kilograms (kg) of uranium enriched to a maximum of 93 percent (9.377 kg U-235) to a total of 20.05 kg high enriched uranium (HEU) (18.707 kg U-235); and
- (2) extending the expiration date of the license from April 30, 2002 to September 30, 2002 to allow the continued production of medical isotopes using NRU.

**BACKGROUND:**

**Status of HEU Exports Approved for the NRU and MAPLE Reactors**

The delays in the start-up of the MAPLE 1 and 2 reactors and the New Processing Facility (NPF), which were designed and built by Atomic Energy of Canada Limited (AECL) specifically for medical isotope production, have required use of the NRU for this purpose longer than anticipated. Other than NRU, a multi-purpose research reactor built in the 1970's, there is no back-up source of medical isotopes until the MAPLE facilities reach commercial operational status. Managing wastes generated from NRU medical isotope production remains a concern, and the options of increasing the uranium concentration level in the Fissile Storage Solution Tank (FISST) and/or cementing some of the fissile waste, each present their own challenges.

NRC license XSNM03171 issued in April 2001, authorized Transnuclear to export 10.05 kg HEU metal (9.377 kg U-235) for the NRU reactor in two increments. The license permitted the immediate shipment to CRL of the first increment of 5.0 kg HEU. Before scheduling shipment of the second increment of 5.05 kg HEU, the licensee was required to provide NRC with at least

**Contact:** Janice Owens, OIP  
415-3684

60 days' advance notice. The purpose of the notice was to update the status of NRU and the need for the additional material. Transnuclear has since provided the advance notice required, the NRC accepted it, and the second increment of HEU authorized for export by NRC license XSNM03171 was shipped to CRL in September 2001. (Prior to issuing XSNM03171, the NRC issued XSNM03012 in June 1998, authorizing the export of 26.738 kg of HEU containing 24.947 kg of U-235 for use in the NRU. As for HEU fabrication scrap transferred to the Dounreay facility in the U.K., it is still uncertain whether or when this material will be processed and returned to AECL.)

As for the export of HEU uranium dioxide targets to the MAPLE facilities under NRC export license XSNM03060<sup>1</sup>, NRC sought written assurances (letter dated April 9, 2001) from Transnuclear that no 2001 shipments authorized by this license would be scheduled until NRC reviewed the required annual report on the program to convert the MAPLE facilities to LEU targets. After that, Transnuclear was to consult with NRC before finalizing the 2001 shipping schedules. These consultations were completed and NRC concluded that schedules proposed for shipping the 22.6125 kg HEU (21.0975 kg U-235) authorized for export to MAPLE in 2001 under XSNM03060 were reasonable. (See memorandum to the Commission dated July 12, 2001.)

AECL subsequently informed NRC that it decided to delay February 2002, March 2002, and May 2002 shipments of HEU targets for the MAPLE facilities authorized by export license XSNM03060. The reason is that upon completion of the 2001 shipments, there should be enough HEU targets available at CRL to commission and operate both MAPLE Reactors for up to one year as well as enough additional HEU targets for a one-year operational reserve. Future decisions on schedules for shipping HEU targets to CRL for the MAPLE Reactors will thus be deferred at least until the second half of 2002. By that time, AECL will have submitted the annual report to NRC required by XSNM03060 (due on May 31, 2002), and expects to be better informed about future HEU target inventory requirements.

### **Justification for Continued Reliance on NRU**

The amendment application currently under consideration (XSNM03171/01) was submitted by Transnuclear on behalf of AECL, (Attachment 1) to add 10 kg HEU (9.33 kg U-235) to the 10.05 kg HEU (9.377 kg U-235) already authorized by NRC for export to CRL to produce medical isotopes in NRU. Also included was a request to extend the expiration date of this export license from April 30, 2002 to September 30, 2002.

An addendum to this amendment application (Attachment 2) provides rationale for the revised estimates of HEU needed for medical isotope production using NRU. As noted in the annual report on the MAPLE program submitted to NRC on May 31, 2001, AECL is preparing to rely on the NRU for at least four to six months longer than it had anticipated when the original XSNM03171 export application was submitted in October 2000. This coupled with an

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<sup>1</sup>XSNM03060, issued July 1999, authorizes the export of HEU in the form of uranium dioxide targets to the MAPLE 1 and 2 Reactors for startup testing and initial operation. In any one of calendar years 2000 through 2003 exports are limited to no more than 22.6125 kg (21.0975 kg U-235). An annual progress report on converting to LEU targets is required.

unexpected increase in the demand for medical isotopes this year means that 10.05 kg of HEU authorized for export in XSNM03171 will not be sufficient. Specifically, instead of sustaining NRU medical isotope production through July 2002, the revised estimate is that it will satisfy demand only until March 2002.

AECL now estimates that it will require an additional 5.0 kg of HEU metal by December 2001 to begin fabricating the targets to ensure their availability for irradiation in NRU when the current supply is exhausted in March 2002. This initial increment of HEU is projected to last through August 2002, and most likely an additional shipment of 5.0 kg of HEU will be needed in early 2002 to produce the targets for NRU from September 2002 through the end of calendar year 2002. This is based on AECL's current expectation that CNSC will authorize the resumption of operational tests at the MAPLE facilities either in late 2001 or early 2002.<sup>2</sup> If this happens, AECL estimates that it will take until the end of calendar year 2002 to perform tests and obtain the necessary authorizations to produce medical isotopes using the MAPLE facilities on a commercial basis.

In light of the uncertainties, the applicant proposes to initially ship only one-half, or 5.0 kg, of the additional 10 kg of HEU currently requested for NRU immediately after the pending amendment is approved. If it is subsequently determined that the remaining balance of 5.0 kg requested is needed, the applicant proposes notifying the NRC at least 60 days in advance of the second shipping date. The notification would include information on the operational status of the NRU, the MAPLE Reactors and the NPF, as well as any other information that may be relevant to AECL's receipt of the material.

### **Executive Branch Views**

In a letter dated October 22, 2001, (Attachment 3), the Executive Branch informed NRC that based on its review of the new application for the export of HEU to NRU, it has concluded that the requirements of the Atomic Energy Act, as amended, have been met and that approving an amendment to the export license would not be inimical to the common defense and security of the United States. After reviewing the physical security measures applicable to the proposed export and based on consultations with the Department of Defense as required under Section 133 of the Atomic Energy Act, as amended, the Executive Branch determined that the physical protection of the material to be exported will be adequate to deter theft, sabotage, and other acts of international terrorism, which could result in the diversion of that material. This determination was made after the events of September 11, 2001.

The Executive Branch also concluded that the specific requirements for HEU exports contained in Section 134 of the Atomic Energy Act as amended (Schumer amendment) are met.

### **DISCUSSION:**

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<sup>2</sup>The CNSC scheduled a public hearing for December 13, 2001 on AECL's application to resume low power commissioning of the MAPLE 1 reactor, and to load fuel in the MAPLE 2 reactor, and to begin active commissioning of NPF.

Canada remains a close and reliable nuclear trading partner of the U.S. Based on Canada's compliance with the terms of the U.S.-Canada Agreement for Cooperation, its acceptance of IAEA full-scope safeguards under the Nuclear Non-Proliferation Treaty (NPT), and its application of adequate physical security and re-export controls over U.S.-supplied or obligated material and equipment, the Commission has in past export cases concluded that Canada meets the export licensing criteria set forth in sections 127 and 128 of the Atomic Energy Act. Moreover, in such cases, including ones specifically involving exports of HEU to AECL/CRL, in addition to meeting the requirements of the Schumer Amendment, the Commission has concluded that the issuance of such export licenses would not be inimical to the common defense and security or constitute an unreasonable risk to the health and safety of the public, pursuant to sections 53 and 57 of the Act.

In summary, NRC staff believes that in addition to legal and regulatory requirements, license conditions have provided opportunities for effectively monitoring the status of the two different forms of HEU exports to Canada and, with the continued cooperation of AECL, ensuring that inventories maintained at CRL for medical isotope production are sufficient without being excessive.

**CONCLUSION:**

The staff concurs with the Executive Branch judgment that issuing the license amendment authorizing the export of an additional 10 kg of HEU and extending the expiration date of that license by five months would not be inimical to the common defense and security of the United States and would be consistent with the provisions of the Atomic Energy Act of 1954, as amended. The Office of the Executive Director for Operations and the Office of Nuclear Material Safety and Safeguards concur. The Office of General Counsel has no legal objection.

**RECOMMENDATIONS:**

That the Commission authorize the approval of License Amendment No. 1 (XSNM03171/01) increasing the amount of HEU that Transnuclear is authorized to export to NRU from 10.05 kg to a total of 20.05 kg; and extend the expiration date of the license from April 30, 2002 to September 30, 2002;

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Janice Dunn Lee, Director  
Office of International Programs

Attachments: 1. Export License Amendment Application from Transnuclear (XSNM03171/01) dated August 9, 2001  
2. Letter and Supplemental Information from AECL dated August 8, 2001  
3. 10/22/01 DOS Letter R.J.K. Stratford to J.D. Lee  
With Assurances from Canadian Government



## TRANSNUCLEAR, INC.

Mr. Ronald D. Hauber  
Deputy Director  
Office of International Programs  
United States Nuclear Regulatory Commission  
11555 Rockville Pike  
Rockville, MD 20852

August 9, 2001

Dear Mr. Hauber:

**SUBJECT: APPLICATION TO USNRC FOR AN AMENDMENT TO EXPORT LICENCE XSNM03171 TO AUTHORIZE THE EXPORT OF AN ADDITIONAL 10.0 KILOGRAMS OF HIGHLY ENRICHED URANIUM TO AECL'S CHALK RIVER, CANADA, FACILITY TO FABRICATE TARGETS FOR IRRADIATION IN AECL'S NRU REACTOR, TO PRODUCE RADIOISOTOPES FOR MEDICAL PURPOSES, AND TO EXTEND THE EXPIRATION DATE FROM APRIL 30, 2002, UNTIL SEPTEMBER 30, 2002**

This letter is to request an amendment to USNRC Export Licence XSNM03171 to extend its valid date from April 30, 2002, to September 30, 2002 and to add 10 kilograms of HEU metal, thereby increasing the authorized quantity from 10.05 to 20.05 kilograms.

The application is made to continue the production of medical isotopes in AECL's NRU reactor at the Chalk River Laboratories. The additional material is needed because of delays in bringing the MAPLE reactors and associated New Processing Facility into commercial operation. A detailed justification for the application is provided in the attached Addendum.

In accordance with regulations regarding fees, we are also enclosing a check issued to the US Nuclear Regulatory Commission for the amount of US\$9,300.

Your expedited review and issuance of an amendment to the export licence will be appreciated.

Do not hesitate to contact me if you have any questions.

Yours sincerely,  
Transnuclear, Inc.

*Mathew George*  
Mathew George  
Traffic Coordinator

Encl.:

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*Attachment 1*

- c. J.-P. Labrie, AECL  
J.A. Glasgow, Morgan, Lewis & Bockius LLP

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2001 August 8

**ADDENDUM TO THE APPLICATION OF TRANSNUCLEAR INC., ON BEHALF OF AECL, TO AMEND XSNM03171 TO AUTHORIZE THE EXPORT OF AN ADDITIONAL 10.0 KILOGRAMS OF HIGHLY ENRICHED URANIUM TO AECL'S CHALK RIVER, CANADA, FACILITY TO FABRICATE TARGETS FOR IRRADIATION IN AECL'S NRU REACTOR, TO PRODUCE RADIOISOTOPES FOR MEDICAL PURPOSES, AND TO EXTEND THE EXPIRATION DATE FROM APRIL 30, 2002, UNTIL SEPTEMBER 30, 2002**

**I. INTRODUCTION**

This Addendum sets forth the reasons why Transnuclear Inc., on behalf of AECL, seeks to amend XSNM03171, to increase, by ten (10.0) kilograms, the quantity of highly enriched uranium (HEU) whose export is authorized by XSNM03171, from the currently licensed amount (10.05 kilograms) to a total of 20.05 kilograms. As discussed below, a delay in the operation of the MAPLE Reactors and the New Processing Facility (NPF) has forced AECL to continue the production of medical radioisotopes in the NRU Reactor for at least 4-6 months longer than AECL had planned when it applied, on October 29, 2000, for XSNM03171. As a result of this delay, AECL will need an additional supply of targets for irradiation in the NRU Reactor.

Although AECL had estimated that 10.05 kilograms of HEU currently authorized by XSNM03171 would produce sufficient targets for irradiation in the NRU to meet medical demands until approximately July 2002, the demand for medical isotopes has been greater than expected. Because of the increased demand for targets, AECL now estimates that the 10.05 kilograms of HEU currently authorized by XSNM03171 will be fully used to manufacture targets that will have been irradiated by approximately March 2002.

To continue the reliable supply of radioisotopes needed to treat seriously ill patients in the United States and Canada, after the HEU currently authorized by XSNM03171 is consumed, AECL must receive an additional supply of HEU. AECL anticipates that an additional 5.0 kilograms will be needed in December 2001, to allow sufficient time for AECL to fabricate the HEU into targets that are required to continue production of molybdenum 99 (Mo-99) in the NRU from



approximately March 2002, until approximately August 2002. AECL also anticipates that an additional shipment of 5.0 kilograms of HEU will be needed in early 2002 to produce targets for use in the NRU from about September 2002 until approximately the end of that year, which AECL estimates is the earliest time that the MAPLE Reactors and the NPF could operate on a commercial basis.

To avoid the accumulation of any excess inventory of HEU for the NRU, AECL and Transnuclear will initially ship no more than 5.0 kilograms of the additional total of 10 kilograms of HEU that is requested by this application for an amendment. Before shipping the final 5.0 kilograms authorized by this amendment, AECL and Transnuclear will notify the NRC Office of International Programs at least 60 days in advance of the proposed shipping date. If AECL needs the final 5.0 kilograms to produce targets for the NRU, as it currently anticipates, its notice to the NRC will set forth current information concerning the operational status of the NRU, the MAPLE Reactors and the NPF as well as other information that may be relevant to AECL's receipt of this material.

## II. RATIONALE FOR INCREASING THE AUTHORIZED QUANTITY OF HEU BY AMENDMENT TO XSNM03171 RATHER THAN A NEW LICENSE

AECL understands that the NRC is often asked to amend export licenses, to increase the authorized quantity and extend the term of the license. For this reason, AECL and Transnuclear Inc. are submitting this application for a license amendment to increase the quantity of HEU authorized by XSNM03171 and to extend the expiration date of the license from April 30, 2002, until September 30, 2002. The end user and end use are unchanged and the facility in which the HEU will be used remains the same.

During its consideration of the application for XSNM03171, the NRC Staff and the Executive Branch conducted a thorough review of the reasons why the HEU covered by this license was needed by AECL to ensure the reliable production of Mo-99 for use in medical radioisotopes. The record of this proceeding also includes comprehensive information concerning the NRU and the processing of targets irradiated in the NRU. Submission of this application as a request for an amendment of XSNM03171 avoids repetition of information that is contained in the record of that proceeding.

AECL understands that the Commission must itself review this request, whether it is styled as an amendment or an application for a new license.

## III. STATUS OF THE SHIPMENT OF THE 10.05 KILOGRAMS OF HEU AUTHORIZED BY XSNM03171

After providing the required notice to NRC, Transnuclear shipped 4.998 kilograms uranium metal to AECL on April 17, 2001. A window for shipping the second shipment has been confirmed with the NRC. The shipment of about 5 kilograms uranium metal will be made in September 2001, at which time the entire quantity of HEU that may be exported pursuant to



XSNM03171, except for tiny residual amounts, will have been received at AECL's Chalk River facility in Canada.

#### IV. REASONS FOR THE DELAY IN ACHIEVING COMMERCIAL PRODUCTION OF RADIOISOTOPES IN THE MAPLE REACTORS AND PROCESSING THEM IN THE NPF

The Annual Report that MDS Nordion filed with the Commission on May 31, 2001, ("Report") discusses the technical difficulties that have significantly delayed the date when the MAPLE Reactors and the NPF are expected to begin commercial operation. As discussed in detail in the Report, problems with the operation of the shut-down rods of the MAPLE 1 Reactor, coupled with the regulatory review being conducted by the Canadian Nuclear Safety Commission (CNSC), have prevented the MAPLE Reactors from achieving commercially operational status. On June 25, 2001, the CNSC renewed the operating licenses for the MAPLE Reactors and NPF for a period of sixteen months, ending October 31, 2002. The CNSC also directed that an additional public hearing be held before the CNSC issues a decision concerning resumption of low-power commissioning of the MAPLE 1 Reactor, fuel loading in the MAPLE 2 Reactor and active commissioning of the NPF. Although CNSC has scheduled a public hearing for October 4, 2001, the CNSC has indicated that resumption of the above-mentioned commissioning activities will not be on the agenda of that meeting. AECL will seek to have the CNSC consider these matters at public hearings that are currently scheduled for November 15 and December 13, 2001.

If the CNSC takes up these re-commissioning matters at public hearings in November or December of 2001, and a ruling allowing re-commissioning to commence is issued soon thereafter, AECL anticipates that it will be able to bring the MAPLE 1 Reactor and the NPF into full commercial operation in the fall of 2002, and the MAPLE 2 Reactor by end of calendar year 2002, at the earliest. Full commercial operation of those facilities will be further delayed if the CNSC does not hold a public hearing on these matters until 2002.

Once commercial production of radioisotopes has been established in the MAPLE 1 Reactor and their processing in the NPF, the NRU reactor will be available as backup until commercial production is achieved in the MAPLE 2 reactor. Irradiation of HEU targets in the NRU reactor should considerably reduce once the MAPLE 1 reactor and NPF could sustain commercial production and be halted after the MAPLE 2 reactor are in commercial production.

#### V. ACTIONS BY AECL TO USE THE NRU AND ASSOCIATED TARGET PROCESSING FACILITY BEYOND THE SUMMER OF 2002

The steps that AECL has taken to allow continued production of Mo-99 in the NRU until the MAPLE Reactors and NPF begin commercial operation are discussed in the responses that AECL submitted, on December 22, 2000, to questions raised by the NRC Staff in connection with the application of Transnuclear, Inc., on behalf of AECL, for XSNM03171. Additional

information on this matter was provided in MDS Nordion's May 31, 2001 Report to the Commission.

As noted in MDS Nordion's Report, in the Fall of 2000, AECL submitted an application to the CNSC, seeking to increase the uranium concentration in the Fissile Solution Tank (FISST) from 7.0 to 7.6 g/L. On July 13, 2001, the CNSC approved an amendment to AECL's Chalk River site license, allowing AECL to increase the uranium concentration in the FISST from 7.0 to 7.3 g/L.

AECL is currently preparing responses to questions raised by the CNSC with respect to increasing the concentration limit from 7.3 to 7.6 g/L. A decision by CNSC with respect to increasing the limit to 7.6 g/L is not expected before early 2002.

AECL is currently developing an operations plan to use FISST until the end of calendar year 2002, by cementing some of the fissile waste from isotope production runs while maintaining potential exposure doses to a minimum. AECL anticipates that its operations plan to use FISST will allow AECL to continue to irradiate targets in the NRU to produce Mo-99 until the MAPLE Reactors and NPF become fully operational on a commercial basis.

**VI. CONTINUED OPERATION OF THE NRU REACTOR UNTIL THE MAPLE REACTORS AND NPF BEGIN COMMERCIAL PRODUCTION OF MO-99 IS ESSENTIAL TO MAINTAINING A RELIABLE SUPPLY OF THIS MEDICAL ISOTOPE FOR TREATMENT OF PATIENTS IN NORTH AMERICA**

AECL and MDS Nordion have advised the Commission that the NRU and its associated HEU target processing facility are essential to the production of Mo-99 for medical purposes until the MAPLE Reactors and NPF are in full commercial operation. As the U.S. Executive Branch and the NRC have recognized, other sources of Mo-99 are not available to meet the needs of medical patients in the United States and Canada in the event that the NRU is unable to continue irradiating targets during the period before the MAPLE Reactors and the NPF are able to begin commercial production of Mo-99 for medical purposes. (See, memorandum from the Department of Energy to the Department of State, dated January 30, 2001, concerning XSNM03171)

There are four major commercial producers of Mo-99 located in Canada, Belgium, the Netherlands and South Africa. Based on their familiarity with these other producers of Mo-99, AECL and MDS Nordion believe that adequate supplies of Mo-99 needed for medical use in North America will not be available from these other sources, in the event that AECL is unable to continue irradiating targets in the NRU during the period before the MAPLE Reactors and NPF have begun commercial operation.

**VII. CONCLUSION**

For the reasons stated above, AECL respectfully submits that this application should be granted. AECL clearly has an urgent need for an amendment to XSNM03171, authorizing the export to

Canada of the additional quantity of HEU that is needed to produce targets to continue production of Mo-99 in the NRU until the MAPLE Reactors and NPF are able to begin commercial operation.



Jean Pierre Labrie  
General Manager  
MMIR Project & Isotope Sales  
AECL

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## United States Department of State

Washington, D.C. 20520

October 22, 2001

Ms. Janice Dunn Lee  
Director, International Programs  
United States Nuclear Regulatory Commission  
Rockville, Maryland

Dear Ms. Lee:

I refer to the letter from your office of August 15, 2001 requesting the views of the Executive Branch as to whether amendment of an export license in accordance with the application hereinafter described meets the applicable criteria of the Atomic Energy Act of 1954, as amended:

NRC No. XSNM03171/01--Application by Transnuclear, Inc to amend its existing license to authorize the export to Canada of an additional 10.0 kilograms of uranium in the form of metal enriched to a maximum of 93.3 percent, and to extend the expiration date of the license from April 30, 2002 to September 30, 2002. The highly enriched uranium (HEU) will be used for the production of medical isotopes in the NRU reactor operated by Atomic Energy of Canada Limited's (AECL) Chalk River Nuclear Laboratories.

The proposed export to Canada would take place pursuant to the Agreement for Cooperation Between the United States and Canada, as amended, as confirmed in the enclosed letter dated October 17, 2001 from the Canadian Nuclear Safety Commission.

The Executive Branch has reviewed the application and concluded that the requirements of the Atomic Energy Act, as amended by the Nuclear Non-Proliferation Act of 1978 and the Energy Policy Act of 1992, have been met and that the proposed export would not be inimical to the common defense and security of the United States.

The Executive Branch has reviewed the physical security measures that are applicable to the proposed export and concluded that physical security will be adequate. The consultations required under Section 133 of the Atomic Energy Act, as amended, have been completed.

The Executive Branch has also determined that the requirements of Section 134 of the Atomic Energy Act, as amended, (the Schumcr Amendment) are met based on the following:

- (1) Argonne National Laboratory has confirmed that there is no low enriched uranium target material currently available that can be used as an alternative to HEU for production of medical isotopes by Chalk River Laboratories.

Attachment 3

(2) The Embassy of the United States in Canada and the Canadian Ministry of Foreign Affairs have exchanged diplomatic notes confirming that both Governments agree that all entities producing medical molybdenum-99 be required to use low enriched uranium targets when such targets are available. The Department of Energy (DOE), in a previously provided letter dated January 24, 2001 reported continued cooperation between Argonne National Laboratory and AECL on LEU target development.

(3) Argonne National Laboratory has an active DOE-funded program underway for the development of low-enriched uranium targets for production of medical isotopes.

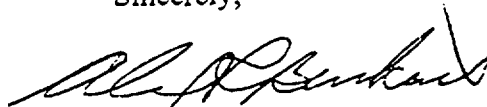
The applicant explains that this additional 10 kilograms of HEU for fabrication of medical isotope production targets for the NRU reactor is needed for two reasons:

1. The steps ordered by the Canadian Nuclear Safety Commission (CNSC) prior to commissioning the two new Maple reactors and the associated New Processing Facility (NPF) for medical isotope production will require more time than originally anticipated.
2. Demand for medical isotopes has increased HEU target consumption. Atomic Energy of Canada Limited (AECL) now estimates that the 10.05 kilograms of HEU for NRU targets authorized for export to Canada under license XSNM03171 will be used up by March 2002, instead of July 2002 as originally estimated.

AECL estimates that it will have to continue using the 40 year old NRU reactor and its associated isotope production facility for a least 4 to 6 months longer than previously planned; that is, until December 2002. AECL estimates that it will need 5 kilograms of HEU by December 2001 to allow sufficient time for fabrication of the HEU into targets. A second tranche of 5 kilograms of HEU will be needed by early 2002 to be fabricated into targets for NRU isotope production from September to December 2002. AECL estimates that December 2002 is the earliest date that the MAPLE reactors and the NPF could be ready for commercial operation.

In view of the foregoing, the Executive Branch recommends that the required determinations be made and that the license be amended as requested.

Sincerely,



Alex R. Burkart, Acting  
Director  
Nuclear Energy Affairs

Enclosure: assurance letter



Canadian Nuclear Safety Commission  
Commission canadienne de sûreté nucléaire

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October 17, 2001

Mr. Adam M. Scheinman  
Director  
Office of Nuclear Transfer and Supplier Policy  
National Nuclear Security Administration  
Department of Energy  
Washington, D.C. 20585  
USA

Dear Mr. Scheinman:

Reference is made to your letter dated September 14, 2001, concerning licence application XSNM3171/01.

I confirm that the transfer of the material as identified on the above-noted licence application will be subject to all of the terms and conditions of the Agreement for Cooperation concerning the Civil Uses of Atomic Energy between the Government of Canada and the Government of the United States, and that the intermediate consignee, Atomic Energy of Canada Limited, Chalk River Laboratories, Chalk River, Ontario is authorized to receive and possess the material.

Yours sincerely,

W. Angus Laidlaw  
Senior Advisor

c.c.: Robin Delabarre, US DOE  
Betsy L. Wright, USNRC

Canada