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April 4, 2002

The Honorable Richard Meserve
Chairman
Nuclear Regulatory Commission
One White Flint North Building
11555 Rockville Pike
Rockville, MD 20852

Dear Chairman Meserve,

We are writing with regard to the request by Nordion, Inc. to amend its existing export license (XSNM 03171/02, *Federal Register*, March 7, 2002) to export an additional 10 kg of highly enriched uranium (HEU) for the production of medical isotopes at its NRU reactor and associated processing facility in Canada. This would be the second amendment to the license, and comes on the heels of the Commission's approval of both the original license and the first amendment, each for the export of 10 kg of HEU for the same purpose. Nordion contends that its latest request is motivated by the need to continue producing isotopes at its old NRU facilities because of further unexpected delays in start-up of commercial isotope production at its new Maple reactors and associated New Processing Facility.

As with the original license and the first amendment, the Nuclear Control Institute does not oppose this new request. However, we remain concerned with how its approval could affect implementation of Nordion's other existing export license (XSNM 03060) for export of HEU targets for isotope production at the Maple facilities, including Nordion's pledge to convert such production to LEU targets. As you know, implementation of that pledge is a continuing requirement for further exports of HEU Maple targets under the Schumer Amendment of the Energy Policy Act of 1992.

Specifically, we wish to stress three points:

- (1) The current moratorium on exports of HEU Maple targets to Canada should be continued at least until Nordion begins commercial isotope production at the Maple facilities. This is essential to prevent any growth in the existing surplus of U.S.-origin, nuclear weapons-grade uranium in Canada, which would increase risks of nuclear terrorism and be inconsistent with U.S. non-proliferation policy. Based on the latest rulings of the Canadian Nuclear Safety Commission (CNSC), and the anticipated timetable for testing and licensing of isotope production at the Maple facilities, such commercial production will not begin until at least 2003, so the current moratorium should continue at least through the end of 2002.

Strategies for stopping the spread and reversing the growth of nuclear arms.

Paul L. Leventhal, President, Peter A. Bradford, Julian Koenig, Sharon Tanzer, Roger Richter, Dr. Theodore B. Taylor
BOARD OF DIRECTORS

- (2) As the Commission ruled with regard to the original NRU license (XSNM 03171) and the first amendment to that license, the Commission initially should approve export of only half the amount of HEU in the current request, requiring the applicant to demonstrate need prior to exporting the balance.
- (3) There is no reason that the continued delay in start-up of commercial operation at the Maple facilities using HEU targets should delay significantly, if at all, Nordion's conversion of such production to LEU targets. In other words, the longer the delay persists, the smaller the amount of HEU Maple targets that Nordion should require prior to converting to LEU targets. Accordingly, the Commission should reduce the total amount of HEU Maple targets that Nordion can export under XSNM 03060 approximately in proportion to the delay in the start-up of commercial operation at the Maple facilities. One straightforward way for the Commission to accomplish this would be to enforce strictly the terms of the license, as it has done so far, by insisting that any HEU licensed for export in a given calendar year but not exported during that year may not be exported subsequently. By hewing to this principle, the Commission could reduce the total amount of HEU Maple targets licensed for export simply by insisting that the current moratorium on such exports be extended through the end of 2002. Doing so would ensure that the applicant has continued incentive to maintain its planned schedule for conversion to LEU targets. It is imperative that the applicant not be permitted to use the delay in start-up of commercial operations at the Maple facilities as an excuse for further delays in its conversion of production to LEU targets. Accordingly, we urge the Commission to make clear to the applicant that the Commission has no intention to amend XSNM 03060 to increase the amount of HEU Maple targets licensed for export, as the applicant has stated publicly and repeatedly that it intends to request.¹

These recommendations are based on several important findings:

First, it is clear that commercial isotope production at the Maple facilities will not begin until well into 2003, at the earliest. In its ruling of January 15, 2002, the CNSC denied Nordion's requests to resume low-power testing of the Maple 1 reactor and to load fuel in the Maple 2 reactor. That ruling also indicates that Nordion may be granted approval for these activities prior to the expiration of the ruling, on October 31, 2002, if a number of specific issues are addressed to the satisfaction of the CNSC staff. Thus, it is possible that the first of the Maple reactors will resume low-power testing in 2002. However, commercial isotope production at the Maple facilities cannot begin until approximately one year following resumption of low-power testing of the first reactor. This is because Nordion must complete at least four additional steps prior to commencing commercial production at the Maple facilities: it must obtain a full-power license for at least one of the reactors, it must irradiate and process test targets, it must submit the resulting data to Health Canada and the U.S. Food and Drug Administration, and it must await consideration and approval by these regulatory agencies for the medical use of isotopes produced with the unprecedented Maple target and process.

¹ See, for example, Daniel Homer, "MDS Nordion Defers Initial HEU Shipments for 2002," *Inside NRC*, August 27, 2001, which reports that, "MDS is still considering the idea, raised in its 2001 annual report, of requesting an amendment to the Maple license to add 40 kg of HEU." The article also quotes Nordion vice-president David McInnes as saying, "There still will be a need for that amount; it's just that the timeline has changed."

The clearest indication that commercial isotope production will not commence at the Maple facilities until at least 2003 is the applicant's current request for a second license amendment to export from the United States an additional 10 kg of HEU to continue producing isotopes at the NRU facilities. The first amendment, approved by the Commission on December 12, 2001, already provides sufficient HEU for the applicant to produce isotopes at NRU through the end of 2002, according to the applicant's request for that earlier amendment.² Thus, the additional 10 kg of HEU currently being sought by Nordion is for production of isotopes at NRU starting in 2003. This indicates that commercial isotope production at the Maple facilities is not foreseen to begin until sometime later in 2003, at the earliest.³ Moreover, based on the applicant's previous representations regarding HEU consumption at NRU, the newly requested 10 kg will be sufficient for approximately nine months' production at the facility – or through at least the end of September 2003.⁴ The fact that the applicant is preparing for full-scale isotope production at NRU through Fall 2003 indicates that it is not confident that commercial production at the Maple facilities will commence prior to that date.

Second, there are strong grounds for the Commission to require that Nordion maintain its current moratorium on exports of HEU Maple targets to Canada. We initially recommended such a moratorium in our letter to you of July 19, 2001, urging the Commission to, "Declare a moratorium on further exports of HEU targets for the Maple reactors after the end of 2001 – by which time Nordion already will have acquired its desired working inventory of 40 kg of such targets – until the start of commercial isotope production using these targets." Subsequently, Nordion pledged to observe such a moratorium during the first half of 2002, thereby confirming that it did not require any further surplus of HEU targets.⁵ Until Nordion's existing surplus of HEU Maple targets begins to be drawn down, when and if commercial production starts at the Maple facilities, there is no justification for any further export of such targets.

Finally, the protracted delays in starting commercial isotope production at the Maple facilities vindicate our original contention that Nordion could have carried out its conversion to LEU targets prior to start-up of the Maple facilities, if it had pursued conversion aggressively.

² The second of two batches of 5 kg of HEU requested under the first amendment was intended "to produce targets for use in the NRU from about September 2002 until approximately the end of that year," according to Jean-Pierre Labrie, AECL, "Addendum to the Application of Transnuclear, Inc.," August 8, 2001.

³ This confirms the assertion in our letter to the Commission of July 19, 2001, which stated that, "Even with the most optimistic assumption that the test irradiation could commence during the commissioning phase of the Maple reactors, Nordion could not begin actual commercial production of isotopes until around the beginning of 2003." At the time, we cited this as grounds for our recommendation that the Commission impose a moratorium on exports of HEU Maple targets to Canada in 2002. By contrast, at the time, Nordion insisted that it could commence such production in 2002. Apparently, this has proved not to be the case.

⁴ Jean-Pierre Labrie, "Addendum to the Application of Transnuclear, Inc.," August 8, 2001, pp. 1-2, states that the 10 kg of HEU requested in the first amendment to XSNM 03171 was intended for production of isotopes from March 2002 through the end of 2002, or approximately nine months.

⁵ Jean-Pierre Labrie, letter to Ronald D. Hauber, July 30, 2001, pp. 1-2, states that "shipments of HEU targets for the Maple reactors scheduled in February 2002, March 2002, and May 2002, will be delayed to later in calendar year 2002, after the submission of the annual report to the Commission, in accordance with Condition 10 of export license XSNM 03060." In addition, the letter states that this moratorium "will limit the inventory of HEU targets for the Maple reactors at Chalk River Laboratories to about a one-year reserve inventory of targets in addition to the one-year on-going production supply of targets." See also, Daniel Horner, "MDS Nordion Defers Initial HEU Shipments for 2002," *Inside NRC*, August 27, 2001.

Had Nordion done so, it would have obviated the need for any HEU commerce at the Maple facilities and reduced the cost of conversion by enabling conversion of the facilities prior to their becoming radioactive.

In testimony before the Commission on June 16, 1999, NCI urged the Commission to deny Nordion's request to export to Canada a five-year supply of HEU Maple targets on grounds that Nordion could convert to LEU targets prior to start up of the Maple facilities. At the time, Nordion contended that NCI's proposed course was impossible because commercial production at the Maple facilities had to start in 2000, because the NRU facilities would be required to shut down by the end of that year due to a full waste tank.⁶ However, as we anticipated, Nordion has been able to extend the life of the NRU facility by cementing some waste and increasing the concentration in its waste tank. Indeed, if the Maple facilities continue to face protracted delays in the start-up of commercial isotope production, it *still may be possible* for Nordion to convert to LEU targets prior to commencing such production while relying on the NRU facilities in the interim. This will be possible, however, only if Nordion pursues conversion aggressively, rather than dragging its feet as it has done in the past. Accordingly, we again urge the Commission to use its considerable influence to insist that Nordion pursue an aggressive timetable for conversion to LEU targets.

Of course, we stand prepared to discuss this important national security matter further, either in your office or at a public meeting of the Commission. Thank you for your consideration of our views and recommendations.

Sincerely,



Alan J. Kuperman
Senior Policy Analyst



Paul L. Leventhal
President

cc: NRC Commissioners
Senator Charles E. Schumer

⁶ At the Commission's public meeting of June 16, 1999, Dr. Iain Trevena, senior vice-president of Nordion, testified that: "with respect to NRU we have a storage tank that's used to contain our high-level fission waste. That storage tank will be filled by the end of the year 2000." Commissioner McGaffigan later summed up Nordion's claim: "There is this physical limit that they talk about at the NRU and our Canadian regulator will not give them further permission on the waste tanks, and so that reactor it sounds like runs out of its life at the end of 2000." NCI's Paul Leventhal replied that the Commission should explore the accuracy of this claim: "Is there a backup waste tank arrangement available if necessary? How full is full of the existing waste tank? Is there any wiggle room at all that would permit continued use of HEU targets in the NRU while the LEU targets are developed and tested and the new production facility modified to accommodate LEU as well as HEU targets? In our view that is the gut issue before the Commission in order to determine whether you are really impelled to act as applicant asks. We think there needs to be some additional fact-gathering by the Commission." NCI's Alan Kuperman added that: "I just would remind the Commission that they approved last year an export of HEU for target material for the NRU, specifically so that the NRU could continue to produce isotopes in case there were any delay in the MAPLE reactor. So, presumably, there is some plan for accommodating extra waste at NRU if it is necessary for Nordion's commercial purposes. And we would just argue that the same fallback solution be used if the MAPLE [facilities are to be delayed further to enable conversion to LEU targets prior to start-up.]"