

004

September 30, 1993

NOTE TO: HUGH THOMPSON  
FROM: MAL KNAPP  
SUBJECT: HEU EXPORT REGULATION

As we discussed earlier today, your intent now is to return this to OGC. You were going to request that they change the package to establish a comment period of 75 days on the regulation.

The cognizant OGC person today was Bill Reamer.

*Mal*  
Mal

*OGC edited Fed Register  
Notice.*

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*Tip Rottschul*  
*10/12/93*

Maryjane -

9/30

I send you a e-mail a this.

Bill Peame

## RESTRICTIONS ON NUCLEAR EXPORTS

Question 1: Could the final rule on export of HEU endanger the US supply of radiopharmaceuticals?

A: First, the rule implements the Energy Policy Act, verbatim. Therefore, if there is a problem, the law would need to be changed.

A plain language version of the part of the Act that applies to targets is:

*NRC may license export of HEU<sup>1</sup> targets only if*

- 1) There is no "alternative"<sup>2</sup> target that "can be used"<sup>3</sup>, and*
- 2) the recipient has assured that when an alternative target can be used it will use it, and*
- 3) the US Government is actively developing an alternative target that can be used.*

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*1 HEU - 20% or more U-235*

*2 alternative - <20% U-235*

*3 can be used - the target has been qualified by DOE's Reduced Enrichment Research and Test Reactor Program and the target's use will permit a large majority of isotope production without a large percentage increase in the cost of operating the reactor.*

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Note: 1) Congress (supposedly) was well aware of the export of targets - they mention it explicitly - perhaps in Holland.

2) The law applies to issuing a license - the present license to export to Chalk River provides for a shipment of HEU targets in 1994. (It doesn't expire until April 30, 1996.)

3) The 1994 HEU target shipment will keep Chalk River supplied through 1995, so if radio-pharmaceuticals are affected, the earliest impact will be in 1996.

Implications of law:

1) HEU target export would be forbidden if technically and economically acceptable LEU targets were available, or

2) Chalk River does not provide assurance that it will use an alternative target when it can be used, or

3) The DOE Reduced Enrichment Program ceases.

Discussion of the above conditions

1) HEU target export would be forbidden if technically and economically acceptable LEU targets were available, or

If technically and economically acceptable LEU targets are available, there is no problem with forbidding HEU shipment.

2) Chalk River does not provide assurance that it will use an alternative target when it can be used, or

This assurance has not been provided, because no one has asked. Since assurance will not be needed until the next export license renewal, Chalk River has not been quired. Should someone? The NRC?

Chalk River is actively moving away from HEU. They have the Maple-X reactor near completion and the PRIAM (Plant for the Recovery and Immobilization of Active Materials) underway. The first will be an LEU reactor. The second is intended to recover HEU and recycle it (RHEU) until no longer possible. This will result in phase out of HEU by 2000. RHEU will be used until no longer possible, after which LEU will be used.

3) The DOE Reduced Enrichment Program ceases.

The DOE program that includes target development is funded at \$2.8 million in FY93 and \$2.8 million in FY94. They have not established a budget for FY95 and beyond, but there is no expectation that the program will be changed. The program appears to be proceeding smoothly.

Question 2: Does the final rule contradict any trade agreements with Canada,  
(including the NAFTA)?

Haven't an analysis yet. The Free Trade Agreement with Canada is Public Law 100-449.  
We need a reading from, probably, DOS attorneys in the Office of the Assistant Legal  
Advisor for Economic, Business and Commercial Affairs.

NAFTA is said to deal with dollars only - need to get a DOS reading here also.

§ 110.2 Definitions.

\* \* \* \* \*

Target means material subjected to irradiation in an accelerator or nuclear reactor to induce a reaction or produce nuclear material.

\* \* \* \* \*

3. In §110.42, paragraph (a)(9) is added to read as follows:

§ 110.42 Export licensing criteria.

(a)

\* \* \*

\* \* \* \* \*

*(A) lesser percent  
not to be less than 20%  
92% is less than 95%  
we prefer 92% over  
95%  
fixed ✓*

(9)(i) With respect to exports of high-enriched uranium to be used as a fuel or target in a nuclear research or test reactor, the Commission determines that:

(A) There is no alternative nuclear reactor fuel or target enriched <sup>to less than 20 percent</sup> in the isotope U-235 ~~to a lesser percent than the proposed export~~ that can be used in that reactor;

(B) The proposed recipient of the uranium has provided assurances that, whenever an alternative nuclear reactor

fuel or target can be used in that reactor, it will use that alternative fuel or target in lieu of <sup>enriched</sup> uranium; and

(C) The United States Government is <sup>(C) This document appears to be an agreement in NRC rule-making process. Responsible with this</sup> an alternative nuclear reactor fuel or target <sup>hoping</sup> can be used in that reactor.

(ii) A fuel or target "can be used" in a nuclear research or test reactor if -

(A) The fuel or target has been qualified by the Reduced Enrichment Research and Test Reactor Program, Department of Energy; and

(A) - is there a "formal" list of "qualified" fuel or targets published by DOE, this reference search non-specific but not we propose to have regulatory decision on this

(B) Use of the fuel or target will permit the large 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.

(B) - is this a cost analysis, how is large determined and assessed?

Dated at Rockville, MD, this \_\_\_\_\_ day of \_\_\_\_\_ 19 \_\_\_\_\_

For the Nuclear Regulatory Commission

James M. Taylor,  
Executive Director for Operations.

September 30, 1993

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*1 copy Retained  
10/12/93*



## QUESTION FROM HUGH THOMPSON:

Chalk River provides the U.S. with its radioisotope supply for many purposes. Will that supply be cut-off in the future due to restrictions on HEU exports as specified in the Energy Policy Act, or are there provisions that will allow the exports to continue?

## ANSWER:

As paraphrased from section 134 of the Atomic Energy Act, contained in section 903 of the Energy Policy Act, future exports of HEU target material from Chalk River may be authorized if

- a) There is no alternative target material of lower enrichment that can be used in Chalk River's reactor; and
- b) Chalk River provides assurances that it will use an LEU target when it becomes available; and
- c) There is an active program in the U.S. to develop an LEU target material that can be used in Chalk River's reactor

These requirements are currently being met as follows:

- a) There is no alternative currently available.
  - c) DOE, in conjunction with Argonne National Lab, is actively researching the use of LEU targets for the production of radioisotopes.
- Since requirements a and c are currently being met, export of HEU target material from Chalk River may be authorized if Chalk River provides the assurance specified in requirement b.

## SOURCES:

International Safeguards Section  
International Programs  
Jim Matos, Argonne National Lab  
Jim McGovern, Citichem