

POLICY ISSUE NOTATION VOTE

September 18, 2009

SECY-09-0136

FOR: The Commissioners

FROM: R. W. Borchardt
Executive Director for Operations

SUBJECT: DENIAL OF PETITION FOR RULEMAKING REQUESTING A BAN ON THE
USE AND EXPORT OF HIGH ENRICHED URANIUM (PRM-50-90)

PURPOSE:

To obtain Commission approval to deny the petition for rulemaking (PRM) submitted by the Natural Resources Defense Council (petitioner).

SUMMARY:

The PRM pertains to the civilian use of high enriched uranium (HEU) and to its export. Domestically, HEU is used as fuel in certain research and test reactors. HEU is also exported on a limited basis for use in a few foreign facilities in the production of medical radioisotopes by irradiating HEU targets. There is now no domestic production capacity for many important medical radioisotopes used in the United States (U.S.). The petitioner requests that a date be established when the Nuclear Regulatory Commission (NRC) will no longer license civilian use or export of HEU except as reactor fuel for a few specialized facilities. As justification for this request, the petitioner asserts that the Department of Energy (DOE) will not meet its goal to convert domestic HEU facilities to using low enriched uranium (LEU) by 2014.

As detailed in the draft *Federal Register* Notice (FRN) (Enclosure 1), the petitioner's requested rulemaking did not demonstrate that the existing NRC licensing, security, and export regulations

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do not currently provide reasonable assurance of adequate protection of the public health and safety and the common defense and security of the U.S. Furthermore, granting the petition could negatively impact the limited supply of vital medical radioisotopes produced by a few foreign facilities, and could lead to shortages of these medical radioisotopes in the United States. In as much as the DOE program to replace HEU fuel at research and test reactors with LEU fuel is funded at the pleasure of Congress, granting the petition could also disrupt the operation of those research and test reactors in the U.S., which are currently fueled with HEU and not yet converted to LEU.

BACKGROUND:

The petitioner filed its petition on March 24, 2008 (docketed as PRM-50-90). The NRC published a notice of receipt and request for public comment in the *Federal Register*. During the comment period, the NRC received a number of requests to extend the comment period. The NRC extended the comment period by an additional 45 days to close on September 25, 2008.

DISCUSSION:

Petitioner's Requests

The petitioner requested the NRC to amend its regulations (10 CFR Part 50.64) and establish a date (either December 31, 2009, or some alternative date) when the NRC will no longer license the civilian use of HEU, except for use as reactor fuel at the MITR-II facility at the Massachusetts Institute of Technology (MIT), the Heavy Water Test Reactor at the National Institute of Standards and Technology (NIST), and the MURR facility at the University of Missouri. The petitioner notes that Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.64 prohibits continued use of HEU fuel in domestic non-power reactors if an LEU fuel alternative is available and that the MIT, NIST, and MURR facilities are working with DOE to develop HEU fuel alternatives. The petitioner states that these facilities should be required to work with the NRC to establish dates when these reactors would be required to convert to using only LEU fuel and report annually to the NRC the progress made toward fuel conversion. The petitioner states that other countries will not likely ban the civilian use of HEU as long as similar use of HEU is permitted in the U.S. and that a domestic ban would signal to other countries "the imperative of eliminating vulnerable sources of HEU." The petitioner further states that eliminating civilian HEU use is absolutely necessary because the greatest threat to the U.S. is the risk that terrorists will acquire and use HEU to make an improvised nuclear explosive device. The petitioner states that eliminating HEU at its source should be this country's highest priority because the existing Federal HEU to LEU conversion programs are moving far too slowly to combat the threat.

On the export issue, the petitioner requests that the NRC establish a date when HEU could no longer be licensed for export, referencing in this regard the export of HEU targets to Canada for Molybdenum-99 (Mo-99) / Technetium-99m (Tc-99m) medical radioisotope production. The petitioner suggests that the Canadian supplier of medical radioisotopes, MDS Nordion, could convert to use LEU targets because at least two other Mo-99 producers have been doing so "for more than 30 years." Although MDS Nordion would incur expenses associated with the conversion, the petitioner states it would be "a small price to pay for the elimination of HEU." The petitioner does not state that establishing a firm date for ending civilian use of HEU in the

U.S. or its export abroad would be detrimental to medical radioisotope production. However, the petitioner suggests that the NRC could authorize the use of 20 to 40 percent-enriched HEU for a limited time if evidence is presented that complete elimination of HEU would not be practical for the MURR and MDS Nordion facilities. The petitioner states that a “reduction from 93.5 percent enriched-HEU to 40 percent would only increase the target material requirement for Mo-99 production by a factor of about 2.3.”

The petitioner states that a ban on the civilian use and export of HEU should apply to all facilities except those that blend down existing HEU to LEU fuel for civilian power reactors or blend down HEU to a lower enrichment (between 20 to 40 percent U-235) for use at the MIT, NIST, and MURR facilities until the LEU conversion process is completed.

The petitioner would also exempt from the proposed rulemaking the following:

1. HEU used for weapons and naval propulsion reactor fuel,
2. spent fuel and radioactive waste regulated by 10 CFR Part 72,
3. the use of HEU under exemptions in 10 CFR 70.11-70.17, and
4. small quantities for the production of calibration or reference sources covered under 10 CFR 70.19 and 70.20.

The petitioner concludes that because LEU is available and can be used as research and test reactor fuel and as targets for medical radioisotope production, there is no reason to continue using HEU for these purposes. The petitioner states that the important national security risks from using HEU clearly outweigh the benefits.

During the public comment period the petitioner submitted the following additional comments and modifications to the original petition:

1. Delete the request to allow the use of lower enriched HEU for research reactors and radioisotope production because this would not be an improvement over setting a date when the use and export of HEU would be banned.
2. Modify 10 CFR 50.64 to require each research and test reactor operating with HEU to generate and periodically update a schedule with the NRC for the conversion to LEU fuel and to make a good faith effort to meet the schedule. If the licensee can not make the schedule, the NRC would consider amending the schedule to enable the continued operation of the facility.
3. Instead of banning the export of HEU by a set date, the Canadian producer of Mo-99/Tc-99m would, in cooperation with the NRC, set and periodically update a schedule for the conversion from HEU to LEU targets. If this schedule cannot be met, the NRC would consider amending the schedule to enable the continued production of medical radioisotopes.

Stakeholder Comments

The NRC received 4,764 comments on PRM-50-90, of which 4,749 supported the petition. These included 4,744 nearly identical, form e-mail comments generated from the petitioner's website. The other supporting comments were submitted by States, private organizations, and a member of the U.S. Congress. Three comments were received that did not provide new or significant information related to the petition. Twelve comment letters opposing the petition were submitted by private organizations, State universities, private companies, and the DOE. Summaries of the PRM-50-90 comments and the NRC staff's responses to the comments are set forth in Public Comments section of the enclosed FRN (Enclosure 1).

RECOMMENDATION:

The NRC staff recommends that PRM-50-90 be denied. The petitioner's bases for requesting the regulatory changes appear to be founded on foreign policy and national security concerns. The proposed changes would not significantly increase the protection of the health and safety to the public compared to the current regulatory requirements. In conjunction with DOE's Global Threat Reduction Initiative, the NRC works effectively to minimize the use and export of HEU material until suitable LEU replacement options are available. Accordingly, the staff requests Commission approval to publish the FRN (Enclosure 1) of the denial.

A letter is enclosed for signature by the Secretary of the Commission (Enclosure 2), informing the petitioner of the Commission's decision to deny the PRM. The appropriate Congressional Committees will be informed.

RESOURCES:

Denial of this petition will not affect budgeted resource needs.

COORDINATION:

This action has been coordinated with staff in the Office of Nuclear Security and Incident Response and the Office of International Programs. The Office of the General Counsel has reviewed this package and has no legal objection.

/RA by Bruce S. Mallett for

R. W. Borchardt
Executive Director
for Operations

Enclosures:

1. *Federal Register* Notice
2. Letter to Natural Resources
Defense Council

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