[7590-01-P]

NUCLEAR REGULATORY COMMISSION

10 CFR Part 50

[Docket No. PRM-50-90]

[NRC-2008-0279]

Natural Resources Defense Council;
Denial of Petition for Rulemaking

AGENCY: Nuclear Regulatory Commission.

ACTION: Petition for rulemaking; Denial.

SUMMARY: The Nuclear Regulatory Commission (NRC) is denying a petition for rulemaking submitted by the Natural Resources Defense Council (PRM-50-90). The petitioner requested that the NRC amend the regulations that govern domestic licensing of highly enriched uranium (HEU) production and utilization facilities to establish a date when the NRC would no longer license the domestic use or export of HEU except for restricted use by a few specialized facilities. The petitioner has not demonstrated that existing NRC licensing, security and export regulations do not currently provide for reasonable assurance of adequate protection of the public health and safety, and the common defense and security of the United States.

ADDRESSES: You can access publicly available documents related to this petition for rulemaking using the following methods:

NRC's Public Document Room (PDR): The public may examine and have copied for a fee publicly available documents at the NRC's PDR, Public File Area O1 F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland.

NRC's Agencywide Documents Access and Management System (ADAMS): Publicly available documents created or received at the NRC are available electronically at the NRC's electronic Reading Room at http://www.nrc.gov/reading-rm/adams.html. From this page, the public can gain entry into ADAMS, which provides text and image files of NRC's public

documents. If you do not have access to ADAMS or if there are problems in accessing the documents located in ADAMS, contact the NRC PDR reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to pdr.resource@nrc.gov.

Federal Rulemaking Website: Public comments and supporting materials related to this petition for rulemaking can be found at http://www.regulations.gov by searching on Docket ID: **NRC-2008-0279**. Address questions about NRC dockets to Carol Gallagher 301-492-3668; e-mail Carol.Gallagher@nrc.gov.

FOR FURTHER INFORMATION CONTACT: Robert Beall, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Telephone: 301-415-3874 or e-mail: Robert.Beall@NRC.Gov.

SUPPLEMENTARY INFORMATION:

The Petition

The NRC received a petition for rulemaking dated March 24, 2008, submitted by the Natural Resources Defense Council (petitioner). The NRC published a notice of receipt and request for public comment on the petition in the *Federal Register* on May 27, 2008 (73 FR 30321). Commenters were given until August 11, 2008, to comment, and the comment period was subsequently extended to September 25, 2008 (73 FR 49965, August 25, 2008).

The petitioner requests that the NRC amend Title 10 of the Code of Federal Regulations (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities;" 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material", and other applicable regulations. Specifically, the petitioner requests that 10 CFR 50.64, "Limitations on the use of highly enriched uranium (HEU) in domestic non-power reactors" and portions of Part 70 that govern the licensing of production, calibration, or reference sources be amended to establish a date by which the NRC would no longer license the civilian use of HEU in the United States

(U.S.). The petitioner also requests that applicable NRC regulations governing the export of HEU from the U.S. be amended to establish a date after which the NRC would no longer license or otherwise authorize these exports.

The petitioner believes that, with limited exceptions, a ban on the civilian use of HEU should be imposed and identifies three issues in this regard.

1. The petitioner states that the NRC should not license the civilian use of HEU after December 31, 2009 (or an alternative date), 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 states that these licensees should be required to work with the NRC to establish dates by which these reactors would be required to convert to using only low enriched uranium (LEU) fuel and report the progress toward fuel conversion annually to the NRC. The petitioner also notes that no commercial U.S. power reactors use HEU fuel and that no future plans to use HEU in NRC-licensed power facilities exist. The petitioner further states that the NRC continues to license the civilian use of HEU to fuel seven existing research and test reactors that have not yet converted to LEU fuel.

The petitioner states that 10 CFR 50.64 prohibits continued use of HEU fuel in domestic non-power reactors if an LEU fuel alternative is available. The petitioner predicts that the three HEU-fueled TRIGA-type research reactors at Oregon State University, the University of Wisconsin, and Washington State University will be converted to LEU during the next two years. The petitioner also notes that the MIT, NIST, and MURR facilities are working with the Department of Energy (DOE) to develop HEU fuel alternatives but questions the accuracy of DOE's estimate that these facilities will be converted by 2014. The petitioner does not know if the only other facility in the U.S., (a small Nuclear Test Reactor (NTR) at General Electric's

Vallectios Nuclear Center used for radiography) is scheduled for conversion to LEU but notes that the newer and larger LEU-fueled TRIGA facility at the McClellan Nuclear Radiation Center is also used for radiography.

2. The petitioner requested that the NRC establish a date when HEU could no longer be licensed for export, citing as an example the export of HEU to licensees in Canada for Molybdenum-99 (Mo-99) / Technetium-99m (Tc-99m) medical radioisotope production. The petitioner states that a ban on the NRC-licensed civilian use and export of HEU should apply to all facilities except those that (1) blend down existing HEU to LEU fuel for civilian power reactors; and (2) blend down HEU to lower concentrations (between 20 to 40 percent U-235) of HEU for use at the MIT, NIST, and MURR facilities. The petitioner is not aware of any other civilian use of HEU other than for the export to Canada for use in producing Mo-99 for Tc-99m, the most widely used medical radioisotope in the world.

The petitioner suggests that the Canadian supplier of medical radioisotopes, MDS Nordion, could convert to the use of 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 believes it would be "a small price to pay for the elimination of HEU." The petitioner does not believe 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 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."

3. 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 U.S. ban would signal to other countries “the imperative of eliminating vulnerable sources of HEU.” In addition, the petitioner states that HEU cannot be reliably detected with radiation monitors that are at the ports and borders around the United States and moreover, the portals can be easily bypassed. The petitioner states that eliminating civilian HEU use is absolutely necessary because the greatest non-state 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.

The petitioner would exempt from the proposed amendment 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 production of calibration or references 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 such purposes. The petitioner states that the high national security risks of HEU use clearly outweigh the benefits. Therefore the NRC should no longer license the civilian use and export of HEU. The petitioner requested that the NRC conduct a rulemaking to establish the proposed amendments as detailed in the petition for rulemaking.

The NRC determined that the petition met the threshold sufficiency requirements for a petition for rulemaking under 10 CFR 2.802 and the petition was docketed as PRM-50-90 on April 1, 2008.

During the public comment period the petitioner sent in the following additional comments

and modifications to the original petition (PRM-50-90):

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 not be authorized.

2. Modify 10 CFR 50.64 to require each HEU licensed research and test reactor to set and periodically update a schedule with the NRC for the conversion from HEU to LEU fuel and to make a good faith effort to meet the schedule. If the licensee cannot make the schedule, the NRC would consider amending the schedule to enable the continued operation of the facility.

3. In conjunction with the NRC, Canadian licensees would set and periodically update a schedule for the conversion from HEU to LEU targets for the production of Mo-99/Tc-99m. The Canadian licensees should make a good faith effort to meet the schedule. If the licensee cannot meet the schedule, the NRC would consider amending the schedule to enable the continued production of medical isotopes. (NRDC 1, NRDC 2, & NRDC 3).

NRC Evaluation

As a general matter, the petitioner's bases for requesting the regulatory changes appear primarily to be founded on foreign policy and national security concerns that are beyond the NRC's statutory purview under the Atomic Energy Act of 1954, as amended (AEA). The petitioner admits that "this issue has less to do with the security of HEU used for civil activities in the United States than it does in signaling to other countries the imperative of eliminating vulnerable sources of HEU elsewhere." But the AEA does not provide the NRC with regulatory authority to deny licenses, whether for civilian domestic use or for exports, solely to promote certain foreign policy objectives, not otherwise directly related to NRC's AEA responsibilities and authorities. While the NRC works effectively to minimize the use and export of HEU until substantial LEU replacement options are available in conjunction with the Department of

Energy's Global Threat Reduction Initiative, the NRC's licensing authority for HEU as well as other nuclear materials is strictly regulatory in nature and may only be exercised in accordance with the statutory scheme and congressional policies established in the AEA.

With respect to matters within the NRC's authority, such as the licensing and security of domestic use and export of HEU, the petitioner has not provided a basis for the NRC to conclude that its regulations do not provide reasonable assurance of adequate protection of the public health and safety or the common defense and security or fail to implement other applicable statutory licensing requirements. For example, 10 CFR 50.64(b)(3) already provides the licensee the flexibility to use HEU enriched as close to 20 percent as possible. In addition, 10 CFR 50.64(c)(2) requires each research and test reactor licensee authorized to possess and use HEU fuel to submit an annual report to the NRC with a schedule and certification of funding for the conversion to LEU fuel. If the conversion funding is not available, the licensee must submit a proposal to the NRC with a new conversion schedule and certification of funding, if available, every 12 months. In addition to the restrictions of 10 CFR 50.64, the NRC has imposed a comprehensive scheme through its regulations, orders and other measures that ensure the security of HEU licensed for civilian domestic use. With respect to exports of HEU, the AEA's various requirements are contained in provisions throughout 10 CFR Part 110.

Additional issues raised by the petition are addressed in the NRC's responses to the other comments that PRM-50-90 generated.

Public Comments on the Petition

The notice of receipt of the petition for rulemaking invited interested persons to submit comments. The NRC received 4,764 comment letters: two from States, one from a Congressional Representative, three from private companies, ten from associated organizations, one from a private individual, two from state universities, one from the Department of Energy

(DOE), and 4,744 electronic form comments generated by the public using the petitioner's website. Most of the comments focused on the three main elements of the petition previously outlined. The NRC reviewed and considered the comments and responses in its decision. A summary of the comments in support of and against the petition and the NRC's evaluation of the comments follows.

Comment 1: Three commenters supported the petitioner's assertion that banning the civilian use of HEU would be the most effective way to decrease the risk of a terrorist attack. The commenters believe that there are inadequate radiation detectors at the borders of the United States for detecting HEU and that the physical security of this material is inadequate. The use of LEU in place of HEU would greatly reduce the risk of nuclear proliferation and the potential for diversion and use in terrorist attacks. (WNCPSR 1, AG 1, NPEC 1)

NRC Response 1: The commenters' statements, which generally amount to assertions that HEU carries high nuclear proliferation risks, do not constitute bases for granting the rulemaking petition. As noted previously, the NRC's licensing authority under the AEA is solely regulatory in nature. The AEA contains no outright ban on NRC licensing of civilian use of HEU. Rather, under the AEA the NRC may not issue a license for civilian use of HEU if it finds that the license would be inimical to the common defense and security or the public health and safety.

Acting in its regulatory capacity, it has been the Commission's policy for over 20 years to support and limit the domestic use of HEU, and it has taken a number of steps within the bounds of its authority to carry out this policy. For instance, in 1978, the United States Department of Energy started the Reduced Enrichment for Research and Test Reactors (RERTR) program. The goal of this program is the conversion of research and test reactors and targets from the use of HEU to the use of LEU. In 1982, the NRC issued a Statement of Policy fully supporting

the RERTR program and stating that the NRC would act expeditiously to review the use of new LEU fuel types in non-power reactors (hereafter research and test reactors) (47 FR 37007, August 24, 1982). In addition, the NRC stated that each HEU export license application will continue to be closely scrutinized to verify that the HEU export meets U. S. statutory requirements. In 2004, the RERTR program became part of the Global Threat Reduction Initiative (GTRI)[1] conducted by DOE's National Nuclear Security Administration (NNSA).

The structure of 10 CFR 50.64 recognizes certain limitations in the effort to convert research and test reactors from HEU to LEU. Since the inception of the RERTR program, it has been recognized that the process of converting from HEU to LEU fuel would require significant funding from Congress and would take a considerable amount of time. Because research and test reactors have special design features, conversion to LEU requires long lead times for developing, designing and testing new types of fuel to avoid serious losses in performance.

However, § 50.64 provides regulatory controls that directly address the limitations of time and funding. Until NRC-licensed research and test reactors are converted from HEU to LEU fuel, each domestic research and test reactor using HEU is required by 10 CFR 50.64(c)(2) to submit an annual certification to the NRC on whether or not DOE funding for the LEU conversion is available along with a schedule of the conversion process. As indicated, Congress provides the funding to DOE to support the HEU to LEU conversion of research and test reactors, and therefore, speed and priority of the LEU conversion process is not under NRC's control.

With regard to the detection of HEU crossing U. S. borders, although the NRC works with the U. S. Department of Homeland Security (DHS) in the event there is a potential threat at the U. S. border from the export or import of radioactive materials, the NRC has no authority over

[1] For more information about the GTRI program see http://nnsa.energy.gov/nuclear_nonproliferation/1550.htm.

this matter. DHS is responsible for the radiation detectors, and for controlling the borders of the U. S.

Regarding the domestic security of HEU, 10 CFR 73.20, 73.25, 73.45, and 10 CFR Part 74 outline the physical protection requirements for possession, use, transportation and accounting of this material by NRC licensees. DOE is the sole U. S. supplier of HEU and the licensed possession and export of HEU requires a physical protection system that will provide a high assurance that the activity does not constitute an unreasonable risk to the public health and safety. Information concerning the site specific security measures to protect HEU activity is considered Safeguards Information under 10 CFR 73.22 and this information must be protected against unauthorized disclosure. Generally, the actual physical movement of HEU is performed using armed escorts and special vehicles designed to protect against the theft, diversion, or radiological sabotage of the material.

In sum, the NRC strongly supports the use of LEU fuel and targets, rather than HEU, as set forth in its 1982 Policy Statement, and will continue to act expeditiously to authorize requested conversions of domestic licensee facilities. The NRC believes it already has adequate regulations in place to support the continued safe and secure use of HEU until a suitable replacement is available.

Therefore, the NRC does not believe that Comment 1 provides a basis for granting the rulemaking petition.

Comment 2: One commenter supported the elimination of HEU in the production of radioisotopes. In addition to the petitioner's statements, the commenter referenced an article in the Journal of American College of Radiology which concludes that the cost increase to consumers to have the manufacturers of radioisotopes switch to using LEU targets would be in

the range of 1 percent to 2 percent. The commenter feels that this would not be an undue burden to the licensees to improve national security. (PSR 2)

NRC Response 2: As noted above, the NRC may only exercise its export licensing authority within the confines of the statutory scheme and congressional policies reflected in the AEA. While the AEA establishes strict requirements for all NRC licensed exports of special nuclear material (i.e., the export licensing criteria under AEA section 127 must be met, the NRC must have an AEA section 123 agreement for cooperation with the recipient country, and the NRC must find that the export would not be inimical to the common defense and security or the public health and safety of the U.S.), it establishes no congressional policy to outright ban NRC licensing of HEU exports regardless of whether the statutory criteria are satisfied.

In the Energy Policy Act of 1992 (EPAct 1992), Congress amended the AEA to require the NRC to adopt additional, more stringent criteria specifically for licensing exports of HEU. Under Section 134 of the AEA, the NRC may 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 meeting the other AEA requirements for exports of special nuclear material, the NRC determines that:

(1) There is no alternative nuclear reactor fuel or target enriched to a lesser percent than the proposed export that can be used in the foreign reactor;

(2) 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 in lieu of HEU; and

(3) The U.S. Government is actively developing an alternative nuclear reactor fuel or target that can be used in that reactor.

More recently, in the Energy Policy Act of 2005 (EPAct 2005), Congress further amended the AEA by adding a new section 134.b, “Medical Isotope Production,” in which Congress continued to encourage the eventual end to relying on HEU targets in the production of medical radioisotopes. In the new AEA section 134.b, Congress lifted certain restrictions on exports of HEU to Canada, France, Belgium, Germany, and The Netherlands for the production of medical radioisotopes if the recipient country supplies an assurance letter to the U.S. that the HEU will be used solely for medical isotope production, and if the NRC determines that the HEU will only be irradiated in a reactor that uses alternative fuel or is the subject of an agreement with the U.S. to convert to alternative fuel when such fuel can be used in the reactor.

The most common radioisotope produced for medical use is Molybdenum-99 (Mo-99) / Technetium-99m (Tc-99m). The U.S. uses about half of the world’s production of these isotopes, for which there are no domestic producers. Almost all of the Mo-99/Tc99m is manufactured by four companies using HEU targets. In recent years, the NRC has only authorized exports of HEU target material to the Canadian medical radioisotope producer.

In support of their request that the NRC ban altogether the civilian use and export of HEU, both the petitioner and the commenter suggest that the NRC may find at this time that the use of LEU targets for production of medical isotopes would be feasible and not cost-prohibitive. However, as a regulator, it is not the NRC's role to determine in the first instance whether the use of LEU targets for medical isotope production is commercially feasible. As reflected in the NRC's response to Comment 1 and explained further below, that role belongs primarily to DOE.

The EPAct 2005 supports continued safe, secure, and reliable production of medical radioisotopes using HEU from the U. S. until a suitable LEU-based substitute is available. In that act, Congress required the Secretary of Energy to arrange for the National Academy of

Sciences (NAS) to conduct a study[2] to determine:

(1) The feasibility of procuring supplies of medical radioisotopes from commercial sources that do not use HEU;

(2) The current and projected demand and availability of medical radioisotopes in regular current domestic use;

(3) The progress that is being made by DOE and others to eliminate all use of HEU in reactor fuel, reactor targets, and medical radioisotope production facilities; and

(4) The potential cost differential in medical radioisotope production in the reactors and target processing facilities if the products were derived from LEU.

The NAS study was issued earlier this year, and identifies additional steps that could be taken by DOE and the medical radioisotope producers to improve the feasibility of HEU to LEU conversions. By August 2010, DOE is required to submit a report to Congress regarding the NAS findings, and on whether any commercial producers have committed to provide domestic requirements for medical radioisotopes without using HEU. Under the EPAct 2005, if any such commercial producers later become capable of meeting domestic requirements for medical radioisotopes without using HEU, the DOE is required to certify this to Congress, in which case the NRC will, by rule, terminate its review of HEU export license applications.

Therefore, the NRC does not believe that Comment 2 provides a basis for granting the rulemaking petition.

Comment 3: A total of 4,744 members of the public submitted the same comment urging the NRC to end the civilian use of HEU. The commenters believe that HEU could be diverted

[2] National Academies of Science Report; "Medical Isotope Production Without Highly Enriched Uranium";

and used to build an improvised nuclear weapon and is simply too dangerous for continued commercial use here and abroad. In addition, these commenters express concerns that the facilities housing the nuclear material are poorly secured. These commenters state that recent studies have shown that radiation monitors cannot reliably detect HEU being smuggled into, and out of, the United States, so the most reliable plan would be to replace and ban its commercial sources. These commenters also state that a U.S. move to ban the use of HEU would signal to other countries the critical need to eliminate the use of HEU. (FORM 1, FORM 3).

NRC Response 3: As previously discussed, the AEA does not authorize the NRC to ban outright the civilian use of HEU under all circumstances. Nor does the AEA authorize the NRC to deny export licenses solely to promote certain foreign policy objectives, such as encouraging other countries not to use HEU.

The NRC can only act within the bounds of its regulatory authority under the AEA to protect the public health and safety and the common defense and security. As a regulator, the NRC has enacted a comprehensive regulatory structure to strictly control licensing of facilities for domestic use of HEU, as well as licensing of exports of HEU. In addition to NRC regulations, the NRC is confident that international treaties and standards governing possession, use, and export of HEU ensure that adequate controls are employed to reduce the risks of theft of HEU from civilian research and test reactors and medical radioisotope production facilities. In addition, the NRC participates in U.S. Government consultations with the governments of countries seeking exports of HEU from the United States. These consultations include an assessment of the security of facilities that will receive U.S. origin HEU, so the security of the facilities can be considered in determining whether an export license should be approved. Given these controls, the likelihood of acquiring HEU from a facility in the U.S. or elsewhere in amounts sufficient to make an improvised nuclear weapon is considered very remote. HEU fuel

is manufactured, shipped, and maintained in limited quantities so that acquiring an amount necessary to make a weapon would be very difficult. Further, the GTRI program continues to make progress and to support the conversion of domestic and foreign research and test reactors from HEU to LEU fuel. Converting HEU fuel into a form suitable for use as a weapon requires considerable technical expertise, due to its physical nature and design.

The security of research and test reactors is regulated through requirements located in 10 CFR Part 73 of the Commission's regulations. The specific security measures that are required vary depending on several factors, which include the quantity and type of special nuclear material possessed by the licensee, as well as the power level at which the licensee is authorized to operate. 10 CFR 73.60 and 73.67 require, at a minimum that each research and test reactor that stores and uses special nuclear material in controlled access areas, monitor the controlled access areas for unauthorized activities, and ensure that there is a response to all unauthorized activities. These regulations also require that unescorted access to the controlled access areas be limited to authorized individuals. The research and test reactors implement these requirements on a site-specific basis through their security plans and procedures.

Subsequent to September 11, 2001, the NRC evaluated the adequacy of security at research and test reactors and considered whether additional actions should be taken to help ensure the trustworthiness and reliability of individuals with unescorted access. The licensees were advised to consider taking immediate additional precautions, including observation of activities within their facility. The NRC evaluated these additional measures at each facility during the remainder of 2001. From 2002 through 2004, research and test reactors voluntarily implemented compensatory measures that included site specific background investigations for individuals granted unescorted access. The NRC has also conducted security assessments at certain research and test reactors which helped to identify risk-significant areas and materials.

In addition to the implementation of site-specific background investigations, the NRC issued orders to all RTRs in April 2007 (72 FR 25337, May 4, 2007), requiring fingerprinting for an FBI identification and criminal history record check for all individuals granted unescorted access to special nuclear material at the facility. The NRC is also undergoing rulemaking to codify unescorted access requirements for RTRs similar to those that were imposed by the April 2007 orders. (See Advanced Notice of Proposed Rulemaking, 74 FR 17115, April 14, 2009).

As stated in the NRC response to Comment 1, DHS is responsible for protecting the borders of the U.S., and the adequacy of the radiation detectors and other types of equipment used for this purpose.

Under the GTRI program, DOE is responsible for developing, testing, and qualifying the LEU fuel, and for funding the facilities to be converted. The speed of the HEU conversion program is dependent on the successful DOE testing of the new LEU fuel design and the funding provided by Congress. The NRC role is to conduct timely reviews of the license amendment requests to approve the operation with LEU fuel.

Therefore, the NRC does not believe that Comment 3 provides a basis for granting the rulemaking petition.

Comment 4: Five commenters did not agree with the petitioner that a firm date is needed when the NRC will no longer license the domestic use of civilian HEU. Although all of them supported the idea to convert to the use of LEU as quickly as possible, they stated that there are technical, economic, and safety issues that must be addressed first. (TRTR 1, UM 1, MIT 1, CORAR 1, & DOE 1)

NRC Response 4: For many of the reasons already discussed in this notice, the NRC generally agrees with this comment. As stated previously, the NRC's view is that the current

U.S. statutory and regulatory framework already addresses the petitioner's security threat concerns regarding the security of HEU licensed for limited civilian domestic use and export.

In addition, the GTRI program is working both in the United States and internationally to reduce the civilian use of HEU by converting facilities to operate with LEU or by shutting down the reactors and removing all the HEU material from the facilities. The NRC works closely with DOE and NRC licensees to ensure that all the required security, safety, and regulatory issues are resolved before, during, and after the conversion process.

Comment 5: The NRC received eleven comments that did not agree with the petitioner's request that the NRC establish a date when HEU would no longer be licensed for export. The commenters stated that there are more than 40,000 nuclear medical procedures performed in the United States each day, and that more than 90 percent of the medical radioisotopes used in these procedures are produced with HEU material. In addition, the most commonly used medical radioisotope in the United States, Mo-99/Tc-99m, is 100 percent imported and produced with HEU materials. The petitioners argue that setting a firm date when the NRC would no longer license the export of HEU before LEU target-based production was available as a replacement could seriously disrupt the worldwide supply of radioisotopes and have a negative impact on patient care. (TRTR 2, ASTRO 2, UM 2, MDSN 2, SNM 2, ACR 2, CORAR 2, DOE 2, MI 2, NEI 2, & AAPM 2)

NRC Response 5: The NRC agrees with the commenters that there are a number of practical and serious implications related to the availability of HEU. Because of the relatively short half life of Mo-99/Tc-99m (66 hours/6 hours), these radioisotopes cannot be stockpiled or stored for very long and must be constantly replenished. The production and delivery of the technetium generators can only be done on a very tight schedule requiring rigorous planning and execution. An interruption at any point in the production, transportation, or delivery chain can have an impact on the supply of the radioisotope. The availability of Mo-99/Tc-99m is further complicated by the fact

that there are a limited number of foreign facilities producing the isotope, the reactors where the targets are irradiated are over 40 years old, and these reactors are used for numerous other types of nuclear research. While there is interest in developing a domestic LEU-based production capability, it is not yet known if or when this capability will become available.

However, in order to license an export of HEU for medical isotope production, the NRC must ensure that all of the applicable statutory requirements, including Section 134 of the AEA, are satisfied. If those statutory requirements are not met, the NRC is not authorized to grant a requested license.

Comment 6: A commenter states that, contrary to the petitioner's belief that a ban on the civilian use of HEU would lead other countries to take similar actions, other countries will not likely follow the U.S. in banning the civilian use of HEU, and that the allies of the U.S. have already joined us to reduce and secure their stocks and uses of HEU. If the petition is granted, the commenter states that would create a false sense of security because the real problem is the potential diversion and lack of inventory control from the countries that made up the former Soviet Union. (TRTR 3)

NRC Response 6: Although the NRC fully supports the efforts of the DOE programs, these activities are not under NRC jurisdiction. However, the NRC believes that DOE's GTRI program is working to address the concerns the commenter mentions.

Determination of Petition

The NRC has determined that the petitioner has not provided an adequate basis on which the NRC could act to implement the proposed changes requested by the petitioner. To the extent that the NRC has authority to act, the NRC's position is that the current regulatory framework in conjunction with DOE's GTRI program already works effectively to minimize the use and export of HEU material until a suitable LEU replacement is available. In addition,

though not essential to the NRC's decision, the NRC acknowledges that banning the use of HEU without a suitable LEU replacement in place would result in significant negative impacts relative to the operation of these research and test reactor facilities, and would likely result in the loss of the research and development benefits these facilities provide. Further, banning HEU without a suitable LEU replacement would also affect the production of vital radioisotopes used for medical diagnostics and therapies, and would likely lead to or exacerbate shortages of these medical radioisotopes in the United States. These shortages would have a major negative impact on patient care.

With respect to export license applications for HEU, bearing in mind the NRC's responsibility to make an overall finding that each export would not be inimical to the common defense and security of the U.S., the NRC intends to continue its practice to carefully review each application to verify that each requested HEU export is justified in accordance with its statutory and regulatory obligations. The NRC will continue to monitor the progress of DOE's GTRI and RERTR programs, including the HEU to LEU conversion schedules.

The NRC will also continue to encourage that the appropriate actions be taken to eliminate U.S.-supplied-inventories of HEU in a manner consistent with the EPAct 2005 requirements.

For reasons cited in this document, the NRC denies the petition.

Dated at Rockville, Maryland, this ____ day of _____ 2009.

For the Nuclear Regulatory Commission.

Annette L. Vietti-Cook,
Secretary of the Commission.