

Before the
UNITED STATES NUCLEAR REGULATORY COMMISSION
Washington, D.C. 20555

In the Matter of	)	
	)	
DOE NNSA	)	Docket No. 11006361
	)	
(Export of 93.35% Enriched Uranium)	)	License No. XSNM 3810
	)	
_____	)	

**PETITION OF ALAN J. KUPERMAN
FOR LEAVE TO INTERVENE
AND REQUEST FOR HEARING**

Pursuant to Section 189a. of the Atomic Energy Act of 1954, as amended, 42 U.S.C. § 2239(a), and Section 304(b) of the Nuclear Non-Proliferation Act of 1978, 42 U.S.C. § 2155a. (the "NNPA"), and the applicable rules and regulations of the United States Nuclear Regulatory Commission (the "Commission"), including 10 C.F.R. Part 110, Subparts H and I, Alan J. Kuperman ("Petitioner") hereby respectfully petitions the Commission for leave to intervene as a party in connection with the amended application of DOE NNSA ("Applicant"), received by the Commission on September 3, 2019, for a license to export 4.772 kg of uranium enriched to a maximum of 93.35% for use in medical

isotope production targets by the Institute for Radioelements (IRE) ("end-user") in Belgium.

In addition, Petitioner requests that the Commission order a full and open public hearing at which interested parties may present oral and written testimony concerning the factual and legal issues relevant to the Commission's determinations with respect to the pending license application. Such a hearing would be in the public interest and assist the Commission in making its statutory determinations under the Atomic Energy Act, as provided for by Section 304(b) of the NNPA, 42 U.S.C. § 2155a., and 10 C.F.R. § 110.84.

I. Petitioner's Interests.

Petitioner is Associate Professor at the University of Texas at Austin, where he is also Coordinator of the Nuclear Proliferation Prevention Project (www.NPPP.org). The NPPP's stated mission is to engage in "research, debate, and public education to ensure that civilian applications of nuclear technology do not foster the spread of nuclear weapons to states or terrorist groups." Petitioner has worked professionally since 1987 on nuclear nonproliferation policy in general, and more specifically on minimizing commerce in nuclear weapons-usable, highly enriched uranium ("HEU"). He is editor and an

author of Nuclear Terrorism and Global Security: The Challenge of Phasing out Highly Enriched Uranium (Routledge, 2013, 2014), which describes past, present, and potential future efforts to minimize export and use of HEU for non-weapons purposes. He is also author of "Nuclear Nonproliferation via Coercion and Consensus: The Success and Limits of the RERTR Program (1978-2004)," which is a book chapter in International Cooperation on WMD Nonproliferation, ed. Jeffrey W. Knopf (Athens, GA: University of Georgia Press, 2016), pp. 46-71.

In 1992, Petitioner, while working as a staffer in the U.S. Congress, drafted the provision of the U.S. Energy Policy Act of 1992 (the "Schumer Amendment") that sharply restricts exports of HEU. Petitioner has made invited presentations regarding export and use of HEU for non-weapons purposes to the International Atomic Energy Agency, the U.S. Nuclear Regulatory Commission, the U.S. Congress, the Department of Energy, and the National Academy of Sciences.

In 2001, Petitioner authored a petition for leave to intervene by the Nuclear Control Institute, regarding an export license application (XSNM-03192) for HEU for use as fuel at the BR-2 reactor in Belgium, after which the applicant suspended its application.¹ Similarly, in 2015, Petitioner authored a petition for leave to intervene, regarding an export license application

(XSNM-03758) for HEU for use as fuel at the BR-2 reactor in Belgium, after which the applicant withdrew its application. In September 2016, Petitioner submitted a letter from experts requesting reduction in the amount of a proposed export of HEU to the Netherlands on grounds that it violated the country's commitments, and 11 months later the NRC reduced the amount in the approved license by nearly half.² In October 2016, Petitioner requested that the Commission reject a proposal from NRC staff to withhold the amounts of material in proposed and approved export licenses, and seven weeks later the Commission replied that, "After further consideration, the NRC has decided not to pursue the staff proposal . . . The NRC encourages and values public comments."³ In response to another petition by the Petitioner, the Commission stated, in February 2017, that "we acknowledge Dr. Kuperman's extensive knowledge of nonproliferation issues."⁴

Petitioner has important institutional interests that would be directly affected by the outcome of this proceeding. As noted above, Petitioner is actively involved in public information and education programs concerning arms control, the spread of nuclear weapons, and the risks of proliferation and nuclear terrorism in general and the use of HEU in particular. Petitioner's interest and ability to carry out these functions

would be significantly and adversely impaired by the absence of a full, open, and independent review by the Commission of the issues raised under the Atomic Energy Act and the NNPA by the pending license application.

Petitioner has no other means to protect its interests in this proceeding, and those interests are not now represented by the existing parties. This Petition, moreover, is not interposed for delay or to broaden the proper scope of the proceeding. It is timely filed, within 30 days of the publication of notice of the amended license application in ADAMS, as required by 10 C.F.R. § 110.82(c)(1). Finally, Petitioner's contentions raise important questions concerning the appropriateness of continued commerce in and use of HEU, which is directly usable in nuclear weapons, and Petitioner submits that its participation will assist the Commission in developing a sound record.

II. Background.

A. HEU and its Risks.

For many years, HEU has been used in the civil sector, including to produce medical isotopes. However, its risks have likewise long been recognized. There have therefore been substantial efforts to curtail its use by substituting low-

enriched uranium ("LEU") -- defined as enriched to less than 20 percent in the isotope U-235 -- which is unsuitable for nuclear weapons but is capable of providing the same civilian benefits without large penalties.

The nuclear proliferation and nuclear terrorism risks associated with the circulation of HEU in commerce are self-evident. HEU was the material used in the Hiroshima bomb (Little Boy). According to the late J. Carson Mark, former head of weapons design at Los Alamos National Laboratory, a "competent group" could build an implosion weapon with as little as about 12 kg of this material.⁵ An even simpler, gun-type weapon could be constructed if a sufficient amount of this material were available. Either design could produce a yield equivalent to each of the nuclear weapons dropped on Japan in World War II.

Consequently, HEU is an attractive target for national diversion or seizure by terrorists. Indeed, the late Manhattan Project physicist Luis Alvarez once noted that with a sufficient amount of "modern weapons-grade uranium ... terrorists, if they had such materials, would have a good chance of setting off a high-yield explosion, simply by dropping one-half of the material on the other half."⁶

B. The RERTR Program.

In recognition of the dangers associated with continued reliance on HEU in research reactors, the United States instituted the Reduced Enrichment for Research and Test Reactors (RERTR) program in 1978. Originally under the leadership of Argonne National Laboratory, and subsequently the National Nuclear Security Administration, this program has developed fuels and targets made of high-density LEU - which is not suitable for nuclear weapons - to reduce proliferation and terrorism risks by enabling conversion from HEU to LEU and thereby significantly reducing the amount of HEU in commerce.⁷

The results of the RERTR program have been impressive. Around the world, at least 71 HEU-fueled research reactors have been converted to LEU fuel, and nearly all new reactors have been built to use LEU fuel.⁸ Moreover, conversion to LEU fuel has been highly successful, according to a recent survey, which reported that at reactors that had undergone conversion to LEU fuel, the "operators overwhelmingly perceived any negative impacts to be outweighed by positive ones."⁹

C. U.S. Policy, Law and Regulation.

U.S. policy has long strongly favored reducing the use of HEU. Thus, the Commission itself as early as 37 years ago

sought to "reduc[e], to the maximum extent possible, the use of HEU in ... foreign research reactors."¹⁰ The same Policy Statement affirmed that "any reduction in the potential for access to these [HEU] inventories would constitute a reduction in the proliferation risk." Moreover, domestically, the Commission in 1986 required all licensed research reactors to convert to LEU.¹¹ In taking this action, the Commission asserted that it was "setting a strong, resolute and sensible example, consistent with U.S. national policy, to encourage foreign operators of non-power reactors to convert to the use of LEU fuel."¹² Consistent with this policy, in 1995 the United States abandoned plans for a new HEU-fueled research reactor, the Advanced Neutron Source, at least partly because the bomb-grade fuel presented "a non-proliferation policy concern," according to the U.S. Department of Energy.¹³

In 1986, Congress took further legislative action to curb the risks associated with commerce in HEU. The Omnibus Diplomatic Security and Anti-Terrorism Act of 1986, as enacted, called upon the President "to take, in concert with United States allies and other countries, such steps as necessary to keep to a minimum the amount of weapons-grade nuclear material in international transit."¹⁴ Under this law, the executive branch reported that its practice was to permit HEU exports only

to those countries "... which have cooperated closely with the U.S. in the Reduced Enrichment for Research and Test Reactors (RERTR) Program. Exports have further been limited to supply of only those research reactors which either cannot be converted at present to LEU fuel or which need additional HEU fuel while in process of conversion to LEU."¹⁵ In addition, Section 603 of the 1986 law added a new Section 133 to the Atomic Energy Act, 42 U.S.C. § 2160c., specifically requiring Commission consultation with the Secretary of Defense concerning the adequacy of physical security in connection with any proposed export or transfer of HEU.

Congress again dealt with commerce in HEU in Title IX, Section 903, of the Comprehensive National Energy Policy Act, Pub. L. No. 102-486, 106 Stat. 2944, enacted October 24, 1992 (the "Schumer Amendment"). The Schumer Amendment added a new Section 134 to the Atomic Energy Act, 42 U.S.C. § 2160d., which limits the circumstances in which any HEU can be exported for use as a fuel or target in a research or test reactor. As its principal author stated, "[T]his bill codifies once and for all that bomb grade uranium is simply too dangerous to continue indefinitely shipping it overseas for non-military purposes."¹⁶ Under the Schumer Amendment, no HEU exports are permitted for

use in a research or test reactor unless all of three conditions are met:

(1) there is no alternative nuclear reactor fuel or target enriched in the isotope 235 to a lesser percent than the proposed export, that can be used in that reactor;

(2) the proposed recipient of that 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 highly enriched uranium; and

(3) the United States Government is actively developing an alternative nuclear reactor fuel or target that can be used in that reactor.¹⁷

The law explicitly defined "alternative nuclear reactor fuel or target" as LEU. Congress envisioned that in the absence of funding for development of such LEU alternatives, the only option would be to "cut off the bomb-grade exports immediately."¹⁸

The Commission's regulations fully incorporate the requirements of the Schumer Amendment.¹⁹ In accordance with 42 U.S.C. § 2160d.(b)(3), the Commission's regulations further define the phrase "can be used" to mean that (A) the fuel or target has been "qualified" by the RERTR program and (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.”²⁰

In addition, on January 2, 2013, the United States enacted the American Medical Isotopes Production Act of 2012, 42 U.S.C. § 2160d.(c-h), which states that, “Effective 7 years after January 2, 2013, the Commission may not issue a license for the export of highly enriched uranium from the United States for the purposes of medical isotope production.”

Under the statute, this cut-off becomes effective after the Secretary of Energy and the Secretary of Health and Human Services have jointly certified that—

(A) there is a sufficient supply of molybdenum-99 produced without the use of highly enriched uranium available to meet the needs of patients in the United States; and

(B) it is not necessary to export United States-origin highly enriched uranium for the purposes of medical isotope production in order to meet United States patient needs.

The statute requires that this joint certification “shall be made not later than 7 years after January 2, 2013,” unless the cut-off date is extended, in which case the certification deadline is extended by an equal period of time.

The statute states that the cut-off date may be extended only if, no earlier than 6 years after January 2, 2013, the Secretary of Energy certifies to the Committee on Energy and Commerce of the House of Representatives and the Committee on Energy and Natural Resources of the Senate that—

(1) there is insufficient global supply of molybdenum-99 produced without the use of highly enriched uranium available to satisfy the domestic United States market; and

(2) the export of United States-origin highly enriched uranium for the purposes of medical isotope production is the most effective temporary means to increase the supply of molybdenum-99 to the domestic United States market.

The explicit intention of this statute was to halt approval of HEU exports for production of medical isotopes by January 2, 2020, unless such exports were necessary to ensure an adequate domestic supply of medical isotopes. The Secretary of Energy has not requested an extension of that cutoff date, which the Secretary was authorized to request, if necessary, after January 2, 2019. The joint certification from the Secretary of Energy and the Secretary of Health and Human Services to activate the cutoff provision is due by January 2, 2020, and there is no indication that such certification will not be forthcoming by that deadline. Indeed, the United States now enjoys adequate

supplies of Molybdenum-99 and other medical isotopes that are produced without HEU in various countries including the Netherlands, Australia, South Africa, and the United States.²¹ Thus, the Commission must assume that it will be prohibited from approving such export licenses as soon as January 3, 2020.

In 2012, Belgium pledged to end use of HEU for medical isotope production by 2015, in a joint statement with three other countries at the 2012 Nuclear Security Summit.²² The pledge stated that, "Belgium, the Netherlands, and France, in cooperation with the United States, reaffirm their determination to support conversion of European production industries to non-HEU-based processes by 2015," and that "the use of HEU will be completely eliminated for medical isotopes that are produced in Belgium."

In 2014, the U.S. Department of Energy (DOE) reaffirmed that it "implements the long-standing U.S policy to minimize and eliminate the use of highly enriched uranium (HEU) in civilian applications by working to convert research and test reactors and isotope production facilities to the use of low enriched uranium (LEU)."²³ At the 2016 Nuclear Security Summit, the United States and 21 other countries "pledged to make every effort to achieve further progress with regard to minimizing and

eliminating the use of highly enriched uranium (HEU) in civilian applications.”²⁴

III. Petitioner's Contentions.

In accordance with Section 53 of the Atomic Energy Act of 1954, as amended, 42 U.S.C. § 2073, and 110 C.F.R. §§ 110.42(a)(8) and 110.45(a), the Commission may not issue a license for the export of special nuclear material, such as the HEU at issue in this proceeding, unless it determines that “[t]he proposed export would not be inimical to the common defense and security.” Petitioner does not necessarily oppose the granting of the license application for some portion of the requested duration and amount of HEU, consistent with U.S. law, assuming that the requisite need can be demonstrated. However, Petitioner submits that the following issues must be addressed in this proceeding in order to ensure compliance with the Commission’s statutory and regulatory obligations:

A. Approving Export of More than One Year’s Worth of HEU Is Inconsistent With Recent Commission Practice and the Intent of U.S. Law

In recent years the United States government has sought to incentivize recipients of U.S. HEU exports for targets to

produce medical isotopes to convert to LEU targets as soon as possible in accordance with the letter and spirit of the Schumer amendment, by limiting export licenses to a single year's worth of HEU. Indeed, since April 2012, all licenses approved by the Commission for export of HEU exclusively for targets to produce medical isotopes have been limited to at most a single year's worth of HEU. This includes the following: XSNM-3708, XSNM-3726, XSNM-3729, XSNM-3729-1, XSNM-3730, XSNM-3730-1, XSNM-3745, XSNM-3752, XSNM-3755, XSNM-3756, XSNM-3761, XSNM-3776, XSNM-3777, XSNM-3788, XSNM-3794, and XSNM-3795. The Commission acknowledged in 2017 that, "export licenses for targets for medical isotope production tend to be for only a year."²⁵

By contrast, the end-user in the current proceeding requests an amount of HEU sufficient to enable it to produce medical isotopes for more than one year, which is inconsistent with Commission practice since 2012 and the intent of U.S. law. The applicant apparently aims to evade U.S. law, which as explained above is expected to prohibit approval of HEU export licenses for medical isotope production after January 2, 2020.

The Commission, in order to comply with its recent practice and the intent of U.S. law, must not approve the export of more HEU than the end-user requires to produce medical isotopes for one year.

B. The End-User Requires Only a Fraction of the
Requested Amount of HEU to Produce Medical Isotopes
for One Year

The end-user indicated in a presentation to the OECD-NEA on July 9, 2019,²⁶ that it expects to complete the conversion of its molybdenum-99 ("Mo-99") production process to LEU targets by the third quarter of calendar year 2020. An existing NRC export license, XSNM-3795, approved October 12, 2018, already has provided the end-user sufficient HEU for targets to produce medical isotopes through the end of the third quarter of 2020, as the applicant confirmed in the cover note to its application in the current proceeding, dated July 31, 2019, which states, "This application covers the total estimated quantity of highly enriched uranium required by IRE to sustain Mo-99 and 1-131 production from the 4th Quarter of 2020 ..."²⁷ If the end-user achieves its own projected completion date for converting its Mo-99 production process to LEU targets, in the third quarter of 2020, the end-user should be able to produce Mo-99 continuously without any further export of HEU from the United States for targets to produce Mo-99. Accordingly, the Commission is prohibited, under U.S. law as cited above, from approving export of further HEU for the end-user to use in targets to produce Mo-

99, since the end-user expects to be able to use LEU targets to produce Mo-99 after its existing supply of HEU is exhausted.

Following conversion of its Mo-99 production process to LEU targets, the end-user contends that it will still require HEU targets to produce Iodine-131 (I-131) because its timeline for converting the I-131 production process to LEU targets will not be completed until 2021, according to its OECD presentation of July 2019. However, the end-user has two processing lines, so after the third quarter of 2020 it could use one with LEU targets to produce Mo-99 and the other with HEU targets to produce I-131. Based on the end-user's current I-131 production rate, it reportedly must irradiate targets each week containing only about 4.3 grams of HEU. Therefore, to produce I-131 for one year starting in the fourth quarter of 2020, the end-user requires less than 225 grams of HEU in targets. Even allowing conservatively for process losses of ten percent during fabrication of targets, the maximum amount of HEU that the Commission is permitted under U.S. law to approve for export in the current proceeding is 250 grams of HEU, and only if the Commission judges that such export is permitted under U.S. law.

The end-user might prefer, for financial convenience, to continue producing Mo-99 using HEU targets, even after it is able to produce Mo-99 using LEU targets, since it wants to

continue producing I-131 with HEU targets. However, U.S. law is unambiguous that the Commission may not license the export of HEU unless "There is no alternative nuclear fuel or target enriched to less than 20 percent in the isotope U-235 that can be used in the reactor." In this proceeding, the Commission is prohibited by law from approving a license to export more HEU for production of Mo-99 than the end-user requires before it is able to produce Mo-99 with LEU targets. This U.S. nonproliferation law does not allow an exemption for the financial convenience of the end-user. Moreover, in light of the fact that medical isotope production is less expensive with HEU than LEU, if the Commission were to approve export of HEU in excess of the minimum amount required by the end-user, the Commission would effectively provide the end-user a subsidy that would enable the end-user to undercut its competitors who have complied with U.S. nonproliferation law and international nonproliferation norms - meaning that the Commission would be undermining U.S. nonproliferation policy.

IV. The Need for a Full Oral Hearing.

A full oral hearing to examine Petitioner's contentions is essential both to serve the public interest and to assist the Commission in making its statutory determinations. Such a

hearing would fulfill the Commission's mandate to explore fully the facts and issues raised by export license applications, where appropriate through full and open public hearings in which (a) all pertinent information and data are made available for public inspection and analysis and (b) the public is afforded a reasonable opportunity to present oral and written testimony on these questions to the Commission. See 42 U.S.C. § 2155a. and 10 C.F.R. §§ 110.40(c), 110.80-110.91, 110.100.²⁸

There is substantial controversy surrounding any continued use of HEU, but especially commerce in excess of demonstrated need. Indeed, the questionable wisdom of permitting unnecessary commerce in HEU has been sharply illustrated by the U.S. policy, after the terrorist attacks of September 11, 2001, of accelerating the collection and return to the United States, at great expense, of previous exports of HEU.

Only a public hearing in which issues related to the appropriateness of exporting HEU are fully aired and subjected to public scrutiny can serve to resolve legitimate public questions concerning both the need for granting this license application and the risks associated with such action. Certainly, the unchallenged assertions of Applicant and/or the Executive Branch are not enough to satisfy the public interest in the case.

Petitioner has broad experience and expertise in technical and policy matters directly relevant to the risks and implications of the proposed export. Additionally, Petitioner is fully familiar with all aspects of the RERTR program. Thus, Petitioner would bring to the instant proceeding perspectives that are presently lacking and are pivotal to an understanding and resolution of the factual and legal issues raised by the pending license application.

V. Relief Requested.

For the reasons set forth above, Petitioner respectfully requests that the Commission:

1. Grant this Petition for Leave to Intervene;
2. Order that an oral hearing be held in connection with the pending license application; and
3. Act to ensure that all pertinent data and information regarding the issues addressed by Petitioner be made available for public inspection at the earliest possible date.

Respectfully submitted,



Alan J. Kuperman, Ph.D.
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Coordinator, Nuclear Proliferation Prevention Project
University of Texas at Austin

Dated: September 19, 2019
Austin, TX

ENDNOTES

¹ Ann MacLachlan and Mark Hibbs, "SCK/CEN Asks U.S. to Stop Work on Export Until Status of its HEU Stocks Is Resolved," Nuclear Fuel 26, 23 (November 12, 2001), at 19.

² David Kramer, "Belgium drops request for US bomb-grade uranium," Physics Today, March 24, 2016.

³ Letter from Nader L. Mamish, Director, NRC Office of International Programs, to Alan J. Kuperman, <http://sites.utexas.edu/nppp/files/2016/12/NRC-disclosure-reply-2016-Nov-30.pdf>.

⁴ U.S. NRC, Memorandum and Order, CLI-17-03, February 17, 2017, <http://sites.utexas.edu/nppp/files/2017/02/BR2-intervention-2016-petition-NRC-order-2017-Feb-17.pdf>.

⁵ Carson Mark, "Some Remarks on Iraq's Possible Nuclear Weapon Capability In Light of Some Known Facts Concerning Nuclear Weapons" (Nuclear Control Institute, May 16, 1991), at 2.

⁶ Alvarez, Adventures of a Physicist (Basic Books 1987), at 125.

⁷ See generally Alan J. Kuperman, "Nuclear Nonproliferation via Coercion and Consensus: The Success and Limits of the RERTR Program (1978-2004)," in International Cooperation on WMD Nonproliferation, ed. Jeffrey W. Knopf (University of Georgia Press, 2015, forthcoming).

⁸ Alan J. Kuperman, ed., Nuclear Terrorism and Global Security: The Challenge of Phasing out Highly Enriched Uranium (New York: Routledge, 2013). E.H. Wilson, et al., "U.S. High Performance Research Reactor Preliminary Design Milestone for Conversion to

Low Enriched Uranium Fuel," 2019 European Research Reactor Conference, March 24, 2019, at 2.

⁹ Ferenc Dalnoki-Veress, "Primarily Positive Perceptions: A Survey of Research Reactor Operators on the Benefits and Pitfalls of Converting from HEU to LEU," presented at the European Research Reactor Conference (RRFM 2014), Ljubljana, Slovenia, April 1, 2014.

¹⁰ See 47 Fed. Reg. 37007 (August 24, 1982), <https://www.nrc.gov/reading-rm/doc-collections/commission/policy/47fr37007.pdf>.

¹¹ See 51 Fed. Reg. 6514 (February 25, 1986).

¹² Id. at 6516. Commission policy, it should be noted, has reflected the consistent views of the Executive Branch that it is important to U.S. non-proliferation policy to minimize the amount of HEU in international commerce. See Presidential Non-Proliferation Policy Statement of April 7, 1977, 13 Weekly Comp. Pres. Doc. 507 (April 11, 1977); U.S. Nuclear Non-Proliferation and Cooperation Policy (July 16, 1981), 17 Weekly Comp. Pres. Doc. 769 (July 20, 1981); Nonproliferation and Export Control Policy Statement, 29 Weekly Comp. Pres. Doc. 1901 (September 27, 1993).

¹³ U.S. Department of Energy, "DOE Facts: A New Neutron Source for the Nation" (February 1995).

¹⁴ See Omnibus Diplomatic Security and Anti-Terrorism Act of 1986, Pub. L. No. 99-399, Sec. 601(a)(3)(A) (August 27, 1986). Congress had previously passed resolutions supportive of Executive Branch efforts to reduce HEU use. See S.J. Res. 179, 97th Cong., 1st Sess. (July 27, 1981); S. Con. Res. 96, 97th Cong., 2d Sess. (May 27, 1982).

¹⁵ 1991 Annual Report Under Section 601 of the NNPA, 22 U.S.C. § 3281 (July 2, 1992), at 77.

¹⁶ 138 Cong. Rec. H. 11440 (daily ed., Oct. 5, 1992).

¹⁷ 42 U.S.C. § 2160d.(a)(1)-(3).

¹⁸ See 138 Cong. Rec. at H. 11440 (Statement of Rep. Schumer).

¹⁹ 10 C.F.R. § 110.42(a)(9)(i).

²⁰ 10 C.F.R. § 110.42(a)(9)(ii).

²¹ See, for example, "Declaration of Roy W. Brown Pertaining to Petition to Intervene and Request for Hearing of Curium US LLC," September 13, 2019, submission in current proceeding, at 11-13.

²² "Belgium-France-Netherlands-United States Joint Statement: Minimization of HEU and the Reliable Supply of Medical

Radioisotopes," The White House, Office of the Press Secretary, March 26, 2012, <https://obamawhitehouse.archives.gov/the-press-office/2012/03/26/belgium-france-netherlands-united-states-joint-statement-minimization-he>.

²³ U.S. Department of Energy, "GTRI's Convert Program: Minimizing the Use of Highly Enriched Uranium," Fact Sheet, May 29, 2014.

²⁴ "NSS 2016: Gift Basket on Minimizing and Eliminating the Use of Highly Enriched Uranium in Civilian Applications," April 1, 2016.

²⁵ U.S. NRC, Memorandum and Order, CLI-17-03, February 17, 2017.

²⁶ "IRE LEU conversion update," OECD-NEA AD-HOC Lite, Slide 4, July 9, 2019, <http://sites.utexas.edu/nppp/files/2019/09/IRE-conversion-status-2019-July.pdf>.

²⁷ Letter from Becky G. Eddy, Program Manager, NNSA Production Office, to David Skeen, Deputy Director, Office of International Programs, U.S. NRC, July 31, 2019. [emphasis added]

²⁸ The Commission's regulations, it should be noted, include specific recognition that public participation and input are encouraged. 10 C.F.R. § 110.81(a).