



**NUCLEAR PROLIFERATION
PREVENTION PROJECT**

January 5, 2023

Secretary
U.S. Nuclear Regulatory Commission
Washington, DC 20555
Attn: Chief, Docketing and Services Branch

**DOE/NNSA—Y-12 National Security Complex (Export of 93.20% Enriched Uranium)
(Docket No. 11006398, Lic. Application No. XSNM-3819)**

Dear Secretary of the NRC:

Additional information has come to light that is relevant to the above-captioned proceeding and my previously submitted Petition for Leave to Intervene and Request for Hearing. Accordingly, I request that this correspondence be filed in the above-captioned proceeding.

The additional information pertains to the petition's expressed concern that, "approving export of more HEU than the end-user might need before it could convert to LEU fuel raises grave risks of undermining the U.S. nonproliferation objective and policy of phasing out international HEU commerce as quickly as possible," and to the statutory prohibition on issuing a license for the export of special nuclear material unless the Commission determines that "[t]he proposed export would not be inimical to the common defense and security."

In April 2021, the NNSA responded to my petition by filing the following response:

"ILL has requested this additional HEU be received by mid-2022 to ensure sufficient lead time for fabricating fuel to support the continued operation of ILL's Réacteur à Haut Flux (RHF, or High Flux Reactor)...This export of 130 kilograms (kg) of HEU would support the fabrication of approximately four years' worth of fuel...The Réacteur à Haut Flux (RHF, or High Flux Reactor) at the Institut Laue-Langevin (ILL) in France is expected to convert to the exclusive use of a qualified low enriched uranium (LEU) fuel by 2031."¹

Since then, the following relevant information has come to light:

- In late 2021, the RHF was shut down for "a major outage forecast to last 14 months," according to France's Nuclear Safety Authority (ASN).²
- The RHF's operation is further limited through 2025 due to its "upgrade program and the compliance and safety related maintenance and modernization work for the period 2021-2025," according to a June 2022 presentation by the reactor's operator.³

¹ National Nuclear Security Administration, "Response to Petition of Alan J. Kuperman," April 5, 2021, <https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML21095A265>.

² French Nuclear Safety Authority, "ASN Report on the state of nuclear safety and radiation protection in France in 2021," May 17, 2022, p. 48.

³ Jérôme Estrade, "Institut Laue Langevin High Flux Reactor ILL 2023: Ambitious Programme For Long Term Future Operations," European Research Reactor Conference, Budapest, June 6-10, 2022, Slide 6.

- Reportedly, the reactor already has enough HEU for fuel to last until at least late 2024 or early 2025 – and possibly beyond, especially in the event of outages longer than anticipated.
- Based on the French government’s recent 10-year safety review of RHF, the reactor is authorized to operate until only 2030. The operator says that it “may consider” applying for authorization to continue operation after 2030, or otherwise may shut the reactor.⁴ As a multinational facility, RHF also has an “intergovernmental convention” valid through 2033, but my understanding is that under French law it cannot not operate after 2030 without receiving a new authorization based on an extensive safety review and implementation of any required upgrades.
- The operator plans to insert a silicide low-enriched uranium (LEU) fuel lead test assembly into the RHF by 2029 to demonstrate the feasibility of conversion to LEU fuel as foreseen in a U.S. Department of Energy report.⁵ The lifetime of each HEU core for the RHF is 50 days, and an LEU core’s lifetime would be about the same, so the feasibility of LEU fuel could be demonstrated by 2029.
- If the operator were to apply for and receive authorization for operation beyond 2030, the reactor could be authorized for LEU fuel only, in which case it would not need HEU fuel beyond 2030. Alternatively, if the reactor were not re-authorized to operate beyond 2030, it also would not need HEU fuel after that date. In either case, the reactor would have no legitimate need for HEU fuel beyond 2030, so the Commission must not approve export of more HEU than the reactor would require by 2030.
- As noted in my Petition (at 14, 17), the Commission stated in 2016 that the amount of HEU in the current proceeding (130 kg) “constitutes a three-to-five year supply of HEU” for the RHF.

My Petition (at 22) also states that, “Petitioner does not necessarily oppose the granting of the license application for some portion of the HEU sought, assuming that the requisite need can be demonstrated.” However, considering that the operator’s existing supply of HEU fuel may last until 2025 or later, and that the reactor’s safety authorization expires in 2030, and that the operator plans to insert an LEU fuel lead test assembly in 2029, it is not apparent that the recipient requires the full amount of HEU requested in the export license application. Accordingly, Commission approval of the full amount of HEU in the license request would raise substantial risk of creating a surplus of U.S.-origin HEU abroad, which would be inimical to the common defense and security, thus violating US nonproliferation law and policy.

Sincerely,



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⁴ Jérôme Estrade, “Institut Laue-Langevin – High Flux Reactor – Results of the Last 10 Years Safety Reassessment,” European Research Reactor Conference, Budapest, June 6-10, 2022, Slides 13 and 20.

⁵ U.S. Department of Energy, “The Scientific Justification for a U.S. Domestic High-Performance Reactor-Based Research Facility,” July 2020, p. 100.