

PURDUE UNIVERSITY AMENDMENT NUMBER 1
SAFETY EVALUATION REPORT
LICENSE NUMBER: SNM-142
DOCKET NUMBER: 70-152

Background

On September 25, 2013, license SNM-142 was renewed for a period of 10 years. The license authorizes Purdue to possess and use Special Nuclear Material (SNM) in a variety of forms, enrichments, and masses. Some SNM is limited to storage only. Purdue also holds Broad Scope license 13-02812-04 (Docket 30-00696) which expires on October 31, 2025.

Request

In a letter dated June 6, 2016, Purdue requested an amendment to transport solid helices enriched at less than 20% in the isotope U-235 to another Purdue location [REDACTED]. The U.S. Nuclear Regulatory Commission (NRC) transmitted a Request for Additional Information (RAI) in a letter dated August 4, 2016. Purdue submitted a response to the RAI in a letter dated September 1, 2016.

Evaluation

Condition 11 of license SNM-142 limits fuel rods and a sealed converter to storage only, unless approved by the NRC. The license is silent on movement of solid helices, which are currently stored [REDACTED]. However, Condition 9 includes a letter dated November 8, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession Number ML12236A544) which states that procedures for using helices were not current.

The regulations in Title 10 of the *Code of Federal Regulations* (10 CFR) Paragraph 70.22(a)(8) require information regarding the procedures used to protect workers and minimize danger to life or property. Purdue commits that tasks involving licensed material will be performed by trained individuals using procedures approved by the Radiation and Safety Committee. In the September 1, 2016, response to the RAI, Purdue reaffirmed this commitment. The procedures will be updated and reviewed and approved by the Radiation Safety Committee prior to movement. This is acceptable.

In the September 1, 2016 response to the RAI, Purdue committed that the helices would remain at the alternate location until the project using the material is completed. The material will remain in the containers during its use. The NRC staff determined that this practice would require fewer movements and therefore reduced risk, and is acceptable.

The mass to be moved is [REDACTED], much less than a mass which would pose a criticality safety concern. No changes to the criticality exemption and conditions [REDACTED] is recommended.

The helices to be moved are in sealed vials. There is no contamination concern. The NRC staff found this to be acceptable.

The general requirements for packaging and transportation of radioactive material are stated in 10 CFR Section 71.5, which references the applicable portions of Department of Transportation regulations in the following areas: packaging, marking and labeling, placarding, accident reporting, shipping papers and emergency information, hazardous material employee training, and security plans.

In the September 1, 2016 response to the RAI, Purdue submitted the Standard Operating Procedure for shipment of limited quantities of enriched uranium. This procedure describes the steps to ensure compliance with 10 CFR 71.5 for transportation of licensed material and is acceptable.

Recommendation

Based on the findings above, the NRC staff recommends that license SNM-142 be amended to add a new condition 11.1 as follows:

“11.1 The licensee is authorized to use the enriched helices up to 20 percent enrichment at an off campus broad scope license location for testing of novel radiation detectors.”

All other conditions of the licensee remain unchanged.

All conditions of the broad scope license remain unchanged.

Environmental Review

In accordance with 10 CFR 51.22(c)(14)(v), this amendment for use of radioactive materials for research or educational purposes is categorically excluded from the requirements to prepare a site-specific environmental assessment or environmental impact statement.

Principal Contributor

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