

SAFETY EVALUATION REPORT

DOCKET NO: 70-0157

LICENSE NO: SNM-180

LICENSEE: University of Texas at Austin
Austin, TX 78758

SUBJECT: APPROVAL OF AMENDMENT REQUEST FOR SPECIAL NUCLEAR
MATERIAL-180, LICENSE TERMINATION AND AMENDMENT 2
(ENTERPRISE PROJECT IDENTIFICATION L-2019-PMP-0193)

BACKGROUND

By letter dated November 15, 2019 (Agencywide Documents Access and Management System [ADAMS] Accession No. ML19337A016), the Nuclear Engineering Teaching Laboratory (NETL) of the University of Texas at Austin submitted a License Amendment Request (LAR) to terminate the SNM-180 License. Included in this correspondence was required documentation of disposition of materials. This correspondence followed an LAR received on April 22, 2019, (ADAMS Accession No. ML19116A057), in support of shipping preparations of licensed material with the intent to terminate the license. Upon completion of described preparations, the materials would be returned to secure storage until packaging and shipment, both to be performed by the Department of Energy (DOE). The DOE was on site the week of November 11, 2019, and completed the approved actions.

Parallel to the April 22, 2019, LAR regarding package and shipping preparations was an LAR dated February 27, 2019 (ADAMS Accession No. ML19067A245) to the NETL research reactor (R-129 license, Docket No. 50-602) to increase possession limits, transferring 147 grams of Plutonium-Beryllium (PuBe) from the SNM-180 license to the reactor license.

REGULATORY REQUIREMENTS

Title 10 of the *Code of Federal Regulations* (10 CFR) Paragraph 70.38(j) provides the regulatory requirements relevant to expiration and termination of licenses and decommissioning of sites and separate buildings or outdoor areas.

DISCUSSION

The materials identified in Table 1 have been on the SNM-180 license for over 15 years. The NETL initially requested acquisition of items one and three by LAR dated May 3, 2004, and was approved by Amendment 1 on July 28, 2004. Following receipt, the materials remained in the shipping containers. The materials were approved to be removed from the shipping containers and moved to secure storage by Amendment 2, dated April 22, 2005 (ADAMS Accession No. ML051160290). At the time of receipt in 2004, the intent was to support research developing accelerator and source driven subcritical assemblies. This research never materialized, and the licensed material has never been requested to be removed from storage. Continued storage was requested and approved in the last license renewal in November 2009 (ADAMS Accession No. ML093030048). Item two on the license was routinely used for the calibration of the Criticality Accident Alarm System (CAAS) in support of the research reactor.

Table 1

Material	Physical/Chemical Form	Quantity, grams (g)
1. Uranium enriched to less than 20% in U-235	Uranium Dioxide in high density polyethylene	470 g U-235
2. Plutonium	Sealed Plutonium-Beryllium (PuBe) neutron sources	147 g
3. Uranium enriched to less than 20% in U-235	Uranium Silicide in Aluminum Matrix	3880 g U-235

In anticipation of license renewal in November 2019, staff contacted NETL staff in November 2018, reminding them of the coming expiration of the license, and to begin preparing for renewal. This early engagement and the disuse of licensed materials became the impetus for the NETL to seek transfer of the materials to the DOE, providing an opportunity to terminate the license. In the April 22, 2019 LAR (ADAMS Accession No. ML19119A008), NETL requested to remove material items one and three to evaluate and prepare the materials for shipment.

When these materials were received in 2004, they were shipped in Type 6M shipping packages. The Type 6M does not conform to the U.S. Nuclear Regulatory Commission (NRC) requirements for Type B packages. The Type 6M container is non-performance based and the DOE phased out the use of the 6M for Type B shipments in January 2006. The NETL conferred with the DOE, who would take responsibility to package and ship these materials upon amendment approval. The shipping package of choice for these types of materials is the ES-3100 and the certificate of compliance was issued on May 7, 2009 (ADAMS Accession No. ML091310143). The dimensions of the materials required limited modification to adequately fit within the ES-3100 shipping containers. Following a site visit by staff on June 25, 2019, the NETL provided detailed procedures on August 16, 2019, for the modification of these materials (ADAMS Accession No. ML19240A024).

The amendment to remove and prepare these materials for packaging and shipment was approved on October 4, 2019 (ADAMS Accession No. ML19267A130). At the time of the review, the DOE had not committed to a date for packaging and shipment, so the amendment specified that upon completion of the required material adjustments and shipping preparations, the materials would be returned to secured storage, either in the designated storage racks of the first level storage area of Room 1.1.04 or within the shipping containers, if available. The SNM-180 license would expire on November 13, 2019, so the specification required the tamper-indicating seals would be in place and no other handling or use of the material was authorized. Materials would remain in storage until a packaging/shipping schedule developed. The staff concluded the licensee's request provided reasonable assurance of subcriticality under normal and credible abnormal conditions and satisfies the requirements of 10 CFR Part 70. Staff was notified on November 8, 2019 (ADAMS Accession No. ML19343A062) that the packaging and shipment was scheduled for the week of November 11, 2019. Further communication was received later that week confirming that the packaging and shipping had been completed and that a complete termination package would be forthcoming.

FINDINGS

By letter dated September 27, 2019, the LAR (ADAMS Accession No. ML19067A245) for the R-129 license, requesting the transfer of 147 grams PuBe from the SNM-180 license, was approved and issued as Amendment 7 to that license. Item two of Table 1 is now under the controls of the R-129 Physical Security Program. The approval of the April 22, 2019 amendment (ADAMS Accession No. ML19119A008) to the SNM-180 license, requesting to

prepare material items one and three Table 1, was issued on October 4, 2019 (ADAMS Accession No. ML19267A130). By letter dated November 15, 2019, the NETL forwarded notification to the agency that packaging, and shipment had been completed along with a request to terminate the license. The contents of the letter included:

- 1) NRC Form 314, Certificate of Disposition of Materials, dated November 13, 2019, signed by the Certifying Official at the NETL, certifying disposition of the material transferred to the DOE National Nuclear Security Complex, Y-12, in Oak Ridge, Tennessee.
- 2) DOE/NRC Form 741, Nuclear Material Transaction Report, dated November 14, 2019, signed by the Certifying Official at the NETL transferring accountability for the materials to the Y-12 complex in Oak Ridge, Tennessee.
- 3) ZVS-2019-001 and ZVS-2019-002, Y-12 National Security Complex Enriched Uranium Declaration Request; one for each material items. Both declarations were dated November 14, 2019, and digitally signed by the manager of the Central Scrap Material Office at the Y-12 Complex.

In addition, on November 15, 2019, the Nuclear Materials Management and Safeguards System verified with the licensee that the data regarding the transfer of the materials to the Y-12 complex was received (ADAMS Accession No. ML19343B696). This documentation meets the requirements for license decommissioning of 10 CFR 70.38(j). One item not provided that would normally be a part of a decommissioning request was a final disposition survey to demonstrate the premises are suitable for unrestricted release in accordance with 10 CFR 20 Subpart E, Radiological Criteria for License Termination. The spaces used during the entire period of licensing of the materials on the SNM-180 license are within the restricted area spaces of the R-129 license and will not be released for unrestricted use. Finally, because the materials on the SNM-180 license were sealed materials, no decommissioning funding was required for the license.

ENVIRONMENTAL REVIEW

The staff has determined that the activities involving the SNM-180 license, to include the LAR for termination are categorically excluded from the requirements to prepare a site-specific environmental assessment. Therefore, in accordance with 10 CFR 51.22(c)(14)(v), neither an environmental assessment nor an environmental impact statement is warranted for this action. The use of radioactive materials for research and development and for educational purposes are eligible for categorical exclusion provided that:

- i. There is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite.
- ii. There is no significant increase in individual or cumulative occupational radiation exposure.
- iii. There is no significant construction impact.
- iv. There is no significant increase in the potential for or consequences from radiological accidents.

The changes in this amendment do not affect the scope or nature of the licensed activity and will not result in a significant change in the types or amounts of effluents released offsite. There will not be any significant increase in individual or cumulative occupational radiation exposure, and there will not be any significant increase in the potential or consequences from radiological

accidents. There is no construction associated with these changes, so there will not be any impact from construction.

CONCLUSION

The NRC staff concludes that the actions taken by The University of Texas at Austin, as discussed herein, prior to and after the submittal of their request to terminate SNM-180 have provided the necessary assurance to conclude that the license can be safely terminated. The NRC staff has further determined that the actions taken by The University of Texas at Austin are adequate to provide assurance of the protection of the health and safety of the public and workers; to protect the environment; and to comply with the regulatory requirements imposed by the Commission in 10 CFR Part 70.

PRINCIPAL CONTRIBUTOR

Tyrone D. Naquin