

[REDACTED]

DOCKET: 70 - 157

LICENSE NO: SNM-180

LICENSEE: University of Texas at Austin  
Austin, Texas 78758

SUBJECT: SAFETY EVALUATION REPORT FOR AMENDMENT 3, INCREASE IN  
PLUTONIUM POSSESSION LIMIT

## BACKGROUND

The [REDACTED] at the University of Texas (UT) uses special nuclear material (SNM) to supplement training and instruction programs in the field of nuclear engineering. UT's Nuclear Regulatory Commission (NRC) license SNM-180, currently authorizes the possession of enriched uranium and [REDACTED] of plutonium contained in sealed plutonium-beryllium neutron sources. Independent of license SNM-180, UT is licensed for the use and storage of several sealed sources under a Radioactive Materials License (L00485) from the Texas Department of State Health Services (TDSHS).

The existing sealed plutonium-beryllium neutron sources licensed by the NRC consist of three plutonium-239/beryllium neutron sources containing [REDACTED]. Under the TDSHS materials license, [REDACTED] uses [REDACTED] sealed plutonium-238/beryllium neutron sources containing [REDACTED] and [REDACTED] plutonium-239/beryllium neutron source containing [REDACTED]. The sealed sources are used to supplement training and instruction programs in the field of nuclear engineering. These sources are stored and used at the [REDACTED].

By letter dated March 27, 2006, UT requested that the plutonium possession limit be increased from [REDACTED] to accommodate licensing, by the NRC, the [REDACTED] plutonium-238/beryllium neutron sources and [REDACTED] plutonium-239/beryllium source, currently licensed by TDSHS. The sources would remain at the current location at [REDACTED] for the same purposes as stated above.

## Nuclear Criticality Safety (NCS)

The NRC staff reviewed the amendment request dated March 27, 2006, which only asked for the possession limit increase described above and did not change any currently authorized activities, or require changes in storage, or use of the plutonium/beryllium sources. In addition, the increase of possession limit in [REDACTED] is significantly below the amount required for a critical mass (i.e., 450 grams). Based on the information in the submittal, the staff determined with reasonable assurance that the increase in possession limits will not decrease public health and safety, security, or protection of the environment.

Enclosure 2

[REDACTED]

[REDACTED]

## Physical Protection

The staff's review determined that the aggregate quantity of U-235 and plutonium, covered by the existing license, constitutes SNM of low strategic significance (LSS), and, under 10 CFR 73.67, the licensee must establish and operate a physical protection system. This regulatory requirement is reflected in the existing license (License Condition 16). Because the total quantity of SNM LSS is less than [REDACTED], the licensee is not required to submit a security plan to the NRC.

The licensee is requesting that the plutonium possession limit for sealed plutonium-beryllium sources be increased to [REDACTED]. The new aggregate quantity of U-235 and plutonium will be less than [REDACTED] SNM LSS and the requested increase will not result in new physical protection requirements under 10 CFR Part 73.

The submittal indicated that two of the three sources to be transferred contain plutonium-238. The staff determined that the amount of plutonium-238 [REDACTED] exceeds the quantity of concern contained in Commission Order EA-05-090, "Order Imposing Increased Controls," Table 1. Table 1 defines the quantity of concern for plutonium-238 at [REDACTED], which equates to [REDACTED]. UT was not subject to the Commission's Order because the NRC license SNM-180 did not authorize possession of material in quantities of concern. In parallel with the Commission's issuance of Order EA-05-090, each agreement state (including the State of Texas) was required to essentially put identical measures in place for licensees under their regulatory jurisdiction. The staff issued a request for additional information, to confirm, in writing, that they have implemented the requirements of Commission Order EA-05-090. By letter dated August 11, 2006, UT confirmed that they have implemented the requirements of Commission Order EA-05-090.

Because the increase in plutonium possession limits authorizes the possession of radioactive material above the definition of a quantity of concern, the staff recommends License Condition 18 be added to the license as follows:

18. The licensee will comply with the requirements for "Increased Controls for Licensees that Possess Sources Containing Radioactive Material Quantities of Concern" (IC) (accession No. ML053130364) published in the *Federal Register* (FR) on December 1, 2005 (70 FR 72128) as "Attachment B" to EA-05-090, "Order Imposing Increased Controls," (accession No. ML053130218). The licensee will complete implementation of the IC requirements by the first day that radionuclides specified in Table 1, "Radionuclides of Concern," (accession No. ML053130250) of the IC are possessed at or above the limits specified in the table. For radionuclides transferred from the Texas Department of State Health Services license (L00485), possession for the purposes of this condition is considered to occur at the time the radionuclides are removed from L00485.

Based on the information in the submittal and the response to the request for additional information, the staff determined with reasonable assurance that possession of radioactive

[REDACTED]

material in quantities of concern, will not decrease public health and safety, security, or protection of the environment.

#### Decommissioning

The plutonium for which the increase in possession limits is being requested is in the form of three sealed sources. Sealed sources are outside the scope of 10 CFR 70.25. Therefore, this amendment does not require a decommissioning cost estimate.

#### Environmental Review

Section 51.22(c)(14)(viii) allows a categorical exclusion for amendment of licenses issued pursuant to 10 CFR Part 70 authorizing use of sealed sources. The staff has determined that the increase in plutonium possession limit is due solely to the transfer of 3 sealed sources from the licensee's state license to the licensee's NRC license No. SNM-180. Based on this evaluation, there is no significant impact to the environment, and the amendment authorizing the use of sealed sources is eligible for a categorical exclusion. Therefore, neither an Environmental Assessment nor an Environmental Impact Statement if required for this action.

#### Conclusion

Based on the above, the staff concludes that there is reasonable assurance that the activities to be authorized by the issuance of an amended license to UT will not constitute an undue risk to the health and safety of the public, workers, and the environment. The staff recommends approval of the amendment application.

NRC Region IV inspection staff has no objection to this proposed action.

#### Principal Contributors

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