10 CFR 50.90

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U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555-0001

Sir:

The Armed Forces Radiobiology Research Institute (License R-84, Docket 50-170) requests to amend its reactor operating license as indicated below. The license to be amended was issued as Amendment No. 18 on August 1, 1984.

1. In subparagraph 2.B.(3), delete the words "but not to separate." The sentence will now read "... and to possess such byproduct material as may be produced by operation of the reactor."

2. Add a new subparagraph 2.B.(4) to state: "Byproduct material produced by operation of the reactor may be separated on a laboratory scale as needed in the development of a system for the production of Mo-99 from low-enriched uranium. Such separation will take place at the AFRRI facility in Bethesda, MD, will not be in batch mode, and will involve no more than 100 grams of uranium enriched in the isotope U-235 per experiment."

This proposed amendment has been evaluated against the criteria of 10 CFR 50.59(c)(2) and the amendment does not increase either the frequency or consequences of an accident previously evaluated in the FSAR.

The frequency of occurrence of an accidental release of radioactive material is not increased in this license amendment. All separations will be performed in the AFRRI Radiation Chemistry Laboratory which was constructed for the specific purpose of conducting radiochemical separations. The Radiation Chemistry Laboratory is located adjacent to the reactor and contains the pneumatic transfer system, hot cell, two fume hoods, and all necessary support facilities including safety showers, hot and warm drains, and radiation area monitors. The lab is maintained under negative pressure to prevent release of material into the surrounding areas and has pressure alarms to indicate any breach of this requirement. Most importantly, air exhausting from the lab is passed through high-efficiency gas absorber and charcoal filter banks which limit the release of radioiodines from the reactor stack. Given these design features of the Radiation

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Chemistry Laboratory, laboratory scale separation experiments do not increase the frequency of an accidental release of radioactive material.

The consequences of an accidental release of radioactive materials are not increased in this separation experiment. As outlined in the AFRRI Technical Specifications section 3.6, each fueled experiment must be limited so that the total inventory of iodine isotopes 131 through 135 in the experiment is not greater than 1.3 curies and the maximum strontium-90 inventory is not greater than 5 millicuries. Since AFRRI is not requesting an increase of these limits, the consequences of an accident remain unchanged.

The language being removed from subparagraph 2.B.(3) is not required by either the Atomic Energy Act or 10 CFR, but was originally inserted in various licenses to ensure that research reactors would not become production facilities. The language proposed for the new subparagraph 2.B.(4) will serve the same purpose and will also permit the vital experiments required to solve the national medical isotope production crisis.

Any questions should be addressed to the undersigned at 301-295-1290.

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