

August 10, 2007

Mr. Ralph Butler, Director  
Research Reactor Center  
University of Missouri-Columbia  
Research Park  
Columbia, MO 65211

SUBJECT: UNIVERSITY OF MISSOURI AT COLUMBIA — REQUEST FOR ADDITIONAL  
INFORMATION RE: LICENSE AMENDMENT ON FUELED EXPERIMENT  
CONDITIONS (TAC NO. MD5782)

Dear Mr. Butler:

We are continuing our review of your amendment request for Amended Facility License No. R-103 for the University of Missouri - Columbia Research Reactor which you submitted on June 8, 2007. During our review of your amendment request, questions have arisen for which we require additional information and clarification. Please provide responses to the enclosed request for additional information within 90 days of the date of this letter. In accordance with 10 CFR 50.30(b), your response must be executed in a signed original under oath or affirmation. Following receipt of the additional information, we will continue our evaluation of your amendment request.

If you have any questions regarding this review, please contact me at (301) 415-1127.

Sincerely,

/RA/

Alexander Adams, Jr., Senior Project Manager  
Research and Test Reactors Branch A  
Division of Policy and Rulemaking  
Office of Nuclear Reactor Regulation

Docket No. 50-186

Enclosure:  
As stated

cc w/enclosure:  
See next page

University of Missouri-Columbia

Docket No. 50-186

cc:

University of Missouri  
Associate Director  
Research Reactor Facility  
Columbia, MO 65201

Homeland Security Coordinator  
Missouri Office of Homeland Security  
P.O. Box 749  
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Division of Planning  
Office of Administration  
P.O. Box 809, State Capitol Building  
Jefferson City, MO 65101

Test, Research, and Training  
Reactor Newsletter  
University of Florida  
202 Nuclear Sciences Center  
Gainesville, FL 32611

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Office	PRTA:LA	PRTA:PM	PRTA:SC
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Date	8/10/07	8/10/07	8/10/07

REQUEST FOR ADDITIONAL INFORMATION  
UNIVERSITY OF MISSOURI RESEARCH REACTOR  
DOCKET NO. 50-186

The following questions are asked to determine compliance with the regulations in 10 CFR Part 20, Standards for Protection Against Radiation.

1. Please provide a detailed analysis with justification of assumptions of the radiological impact to persons in the reactor containment and members of the public from a failure of the fueled experiment irradiation container. While your proposed technical specification (TS) is based on certain iodine and strontium isotopes, please base your calculations on all isotopes that are likely to be released from the failed irradiation container.
2. How would failure of a fueled experiment be detected? What is the sensitivity of the radiation detection equipment? What actions, both automatic and operator initiated would be taken in response to an experiment failure?
3. Will the target processing be conducted under the reactor license? If so, describe the facilities that will be used. Describe how radioactive material will be controlled during target processing. Describe possible accident scenarios and the potential radiological impact of the scenarios.

The following question is asked to determine compliance with the conditions of your reactor license.

4. License condition 2.B.(2) allows you "to possess, but not separate, such special nuclear material as may be produced by the operation of the facility...." Please describe the complete processing that the irradiated uranium targets will undergo. Explain how license condition 2.B.(2) is met during this process.

Enclosure