

April 12, 2012

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

SUBJECT: UNIVERSITY OF MISSOURI – COLUMBIA – REQUEST FOR ADDITIONAL
INFORMATION, RE: LICENSE AMENDMENT, SAFETY LIMITS (TAC NO.
ME7018)

Dear Mr. Butler:

We are continuing our review of your amendment request for Facility Operating License No. R-103 for the University of Missouri – Columbia Research Reactor which you submitted on August 24, 2011. 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 45 days of the date of this letter.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.30(b), you must execute your response in a signed original document under oath or affirmation. Your response must be submitted in accordance with 10 CFR 50.4, "Written Communications." Information included in your response that is considered security, sensitive, or proprietary, that you seek to have withheld from the public, must be marked in accordance with 10 CFR 2.390, "Public inspections, exemptions, requests for withholding."

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 Licensing Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Docket No. 50-186

Enclosure:
As stated

cc w/encl: See next page

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

SUBJECT: UNIVERSITY OF MISSOURI – COLUMBIA – REQUEST FOR ADDITIONAL
INFORMATION, RE: LICENSE AMENDMENT, SAFETY LIMITS (TAC NO.
ME7018)

Dear Mr. Butler:

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NRR-088

OFFICE	PRLB:PM	PRLB:LA	PRLB:BC	PRLB:PM
NAME	AAdams	GLappert	JQuichocho	AAdams
DATE	4/12/12	4/11/2012	4/12/12	4/12/12

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University of Missouri-Columbia

Docket No. 50-186

cc:

John Ernst, Associate Director
Regulatory Assurance Group
Research Reactor Facility
Columbia, MO 65201

Homeland Security Coordinator
Missouri Office of Homeland Security
P.O. Box 749
Jefferson City, MO 65102

Planner, Dept of Health and Senior Services
Section for Environmental Public Health
930 Wildwood Drive, P.O. Box 570
Jefferson City, MO 65102-0570

Deputy Director for Policy
Department of Natural Resources
1101 Riverside Drive
Fourth Floor East
Jefferson City, MO 65101

A-95 Coordinator
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

OFFICE OF NUCLEAR REACTOR REGULATION
REQUEST FOR ADDITIONAL INFORMATION
REGARDING LICENSE AMENDMENT REQUEST FOR
THE UNIVERSITY OF MISSOURI - COLUMBIA RESEARCH REACTOR
LICENSE NO. R-103; DOCKET NO. 50-186

We are continuing our review of your amendment request for Facility Operating License No. R-103 for the University of Missouri – Columbia Research Reactor which you submitted on August 24, 2011. During our review of your amendment request, questions have arisen for which we require additional information and clarification. Please provide responses to the following requests for additional information (RAI) within 45 days of the date of the letter.

1. The axial peaking factor was changed from 1.432 in the previous analysis to a new value of 1.2958 in the new analysis. Please provide a justification for this change and a basis for the revised axial peaking factor.
2. The new Safety Limit Analysis for MURR (Application Attachment 11), Section F.4 assumes that the center test hole contains only moderator. It appears that this analysis does not address the effect of irradiation samples and experiment test tube canisters in the center test hole on the core heat flux. Please provide a summary of the effect of irradiation samples and canisters in the center test hole on the heat flux profile used for the hot channel factors of Table F.4.
3. The enthalpy rise and heat flux factors contain a new “additional allowable peaking factor” of 1.062. It appears that this new factor is not described or justified in the application submittal. Please provide additional information justifying the use and the magnitude of the additional peaking factor.
4. There appears to be several changes in your proposed TSs that are not discussed in your amendment application. For example, the word “water” is added to TS 2.1 a. Please describe and justify all requested changes to your TSs.
5. Attachment 12 of your amendment application discusses a Case 1 severe power transient and concludes that ample safety margin exists for safety system reaction time. Please describe this transient in detail which supports your conclusion.

ENCLOSURE