July 28, 2005

Mr. P. Michael Whaley
Nuclear Reactor Manager
Kansas State University
112 Ward Hall
Manhattan, KS 66506-2506

SUBJECT: KANSAS STATE UNIVERSITY—REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 2 RE: LICENSE RENEWAL FOR THE KANSAS STATE UNIVERSITY NUCLEAR REACTOR FACILITY ENVIRONMENTAL REPORT (TAC NO. MB6326)

Dear Mr. Whaley:

We are continuing our review of your Environmental Report for renewal of Amended Facility License No. R-88 for the Kansas State University (KSU) Nuclear Reactor Facility which you submitted on September 12, 2002, and supplemented on July 1, 2005. During our review of your request, questions have arisen for which we require additional information and clarification. Please provide responses to the RAI 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 Kevin Witt at (301) 415-4075.

Sincerely,

/RA/

Daniel E. Hughes, Project Manager
Research and Test Reactors Section
New, Research and Test Reactors Program
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No. 50-188

Enclosure: As stated

cc w/enclosure: See next page

cc:

Office of the Governor
State of Kansas
Topeka, KS 66612

Mayor of Manhattan
P.O. Box 748
Manhattan, KS 66502

Test, Research, and Training
Reactor Newsletter
202 Nuclear Sciences Center
University of Florida
Gainesville, FL 32611-8300

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DATE	7/18/05		7/18/05		7/18/05		7/28/05	

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REQUEST FOR ADDITIONAL INFORMATION CONCERNING THE
KANSAS STATE UNIVERSITY NUCLEAR REACTOR FACILITY
ENVIRONMENTAL REPORT
DOCKET NO. 50-188

4 UNAVOIDABLE ENVIRONMENTAL RISKS

4-1 Section 4.1, Nuclear Fuel Cycle, page 4. Please provide an estimate of the annual fuel burn-up rate with projected operations at 1250 kW. Also, please elaborate on the current and future status of spent fuel storage if the power up-rate request is approved.

4-2 Section 4.2, Radioactive Waste, page 4. The figure on page 4 shows the history of solid waste transfer from the reactor facility. Please provide updated tabulations of nuclear reactor solid waste transfers from 2002 through the most recently available records. Also, please provide an estimate of the solid waste that will be produced on an annual basis from the reactor if the power up-rate request is approved.

4-3 Section 4.2, Radioactive Waste, page 4. "All of the solid radioactive wastes generated in the entire university are accepted and processed by the University Office of Radiation Protection in the Division of Public Safety." Please discuss the impact the reactor power up-rate will have on the broad scope materials license limits and the operation of the University Office of Radiation Protection.

4-4 Section 4.3, Release of Liquid Wastes, page 5. The figure on page 5 shows the history of liquid waste releases from the reactor facility. Please provide updated tabulations of nuclear reactor liquid waste releases from August 11, 1999 through the most recently available records. Also, please provide an estimate of the liquid radioactive material waste that will be produced on an annual basis from the reactor if the power up-rate request is approved.

4-5 NUREG-1537, Part 1, *Guidelines for Preparing and Reviewing Applications for the Licensing of Non-Power Reactors: Format and Content*, Appendix 14.1, section 3.7.2 says, "All radioactive species listed in Section 3.7.2 of ANSI/ANS 15.1 that are released by the facility should be addressed for normal operations, and the releases should be limited by technical specifications." Section 1.3.7.b of the Safety Analysis Report (SAR) explains that liquid wastes are assayed before disposal to assure limits are met, yet the application Technical Specifications (TSs) do not contain limits for liquid radioactive material releases. Please provide justification for not having a TS limit on liquid radioactive material releases.

4-6 Section 4.6, Radiation Exposure of Personnel, page 6. The figure on page 6 shows the history of radiation exposures to reactor users and the operating staff. Please provide updated histories of radiation exposures from 1992 through the most recently available records. Also, please elaborate on expected reactor personnel radiation exposures if the power up-rate request is approved.

4-7 Section 4.7, Environmental Radiation Exposure, page 6. Please provide an updated average of environmental radiation exposure from 1998 through the most recently available records. Discuss how and where these exposures are measured. Also, please elaborate on expected environmental radiation exposures if the power up-rate request is approved.

4-8 Section 4.7, Environmental Radiation Exposure, page 6. Please provide a more detailed discussion of the source of radiation exposures that are described in this section. Provide a description of the beam port placement and any possible exposures to someone outside of the facility. Also, please elaborate on expected direct radiation exposures to someone outside of the facility in the path of an open beam port if the power up-rate request is approved.

4-9 Please discuss the non-radiological impacts the reactor will have on the environment if the power up-rate request is approved. Your discussion should include, but is not limited to: water usage, chemical utilization and heat disposal.