

September 8, 2008

Mr. William Bonzer, Reactor Manager
Missouri University of Science and Technology
226 Fulton Hall
Rolla, MO 65409-0170

SUBJECT: MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY RESEARCH
REACTOR (MSTR) FACILITY - REQUEST FOR ADDITIONAL INFORMATION
(RAIs) REGARDING LICENSE RENEWAL (TAC NO. MC5737)

Dear Mr. Bonzer:

We are continuing our review of your August 30, 2004 application, and your responses to RAI submissions dated November 16, November 27, December 26, 2007; January 17, March 6, and June 26, 2008, and associated supplements, for license renewal of the MSTR. After reviewing your submissions, questions have arisen for which we require additional information and clarification. During a discussion with you on August 25, 2008, you agreed to provide a response to the enclosed Request for Additional Information (RAI) no later than September 17, 2008. Your timely response is needed to support completion of the review. In accordance with 10 CFR 50.30(b), your response must be executed in a signed original under oath or affirmation.

Should you have any questions, please contact me at 301-415-4007.

Sincerely,

/RA/

John Nguyen, Project Manager
Research and Test Reactors Branch A
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Docket No. 50-123
License No. R-79

Enclosures: As stated
cc w/enclosure: See next page

September 8, 2008

Mr. William Bonzer, Reactor Manager
Missouri University of Science and Technology
226 Fulton Hall
Rolla, MO 65409-0170

SUBJECT: MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY RESEARCH
REACTOR (MSTR) FACILITY - REQUEST FOR ADDITIONAL INFORMATION
(RAIs) REGARDING LICENSE RENEWAL (TAC NO. MC5737)

Dear Mr. Bonzer:

We are continuing our review of your August 30, 2004 application, and your responses to RAI submissions dated November 16, November 27, December 26, 2007; January 17, March 6, and June 26, 2008, and associated supplements, for license renewal of the MSTR. After reviewing your submissions, questions have arisen for which we require additional information and clarification. During a discussion with you on August 21, 2008, you agreed to provide a response to the enclosed Request for Additional Information (RAI) no later than September 17, 2008. Your timely response is needed to support completion of the review. In accordance with 10 CFR 50.30(b), your response must be executed in a signed original under oath or affirmation.

Should you have any questions, please contact me at 301-415-4007.

Sincerely,

/RA/

John Nguyen, Project Manager
Research and Test Reactors Branch A
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Docket No. 50-123
License No. R-79

Enclosures: As stated
cc w/enclosure: See next page

DISTRIBUTION:

PUBLIC RidsNrrDprPrta RidsNrrDprPrtb
RTR R/F

ACCESSION NO.: ML082460561

Template No.: NRR-106

OFFICE	PRTA:PM	PRTA:LA	DRIP/RPRP:	PRTA:BC
NAME	J Nguyen jtn	EBarnhill eeb	CPittigilo cp	DCollins dsc
DATE	9/8/08	9/8/08	9/8/08	9/8/08

OFFICIAL RECORD COPY

Missouri University of Science and Technology

Docket No. 50-123

cc:

Dr. Samuel Frimpong, Chair
School of Mines and Nuclear Engineering
305 McNutt Hall
Missouri University of Science and Technology
Rolla, MO 65409-0630

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

REQUEST FOR ADDITIONAL INFORMATION

MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY

DOCKET NO. 50 -123

1. Provide the purpose, frequency, and duration of operating the reactor at power levels ranging from 200 kW to 300 kW. Discuss reactor design, safety function, and procedures that prevent the reactor from exceeding the fuel cladding temperature and an uncontrolled reactor transient.
2. Section 14.3.2.2. Section 7.2.2.4 of the MSTR SAR specifies two channels: High Voltage (HV) Safety Channel No.1 and HV Safety Channel No. 2 for scram functions. However, these channels are missing in TS 14.3.2.2. Provide justification why these channels are not included in TS 14.3.2.2.
3. Section 14.3.4. The specification in this section states: "The reactor shall not be operated unless the reactor truck door is closed and the ventilation intake and exhaust duct louvers are operable or secured in a closed position." Discuss whether any work is allowed involving core fuel loading, or installed control rods when the confinement is not operable.
4. Section 14.3.6.1. The specification in this section states: "The reactor shall not be operated unless the Continuous Air Monitor (CAM) is operable and the Radiation Area Monitors (RAMs) located at the reactor bridge, at the demineralizer, and in the basement experimental area are operable." Discuss the CAM design (associated alarms, set points, and warning circuitry), surveillance, and reactor procedure that ensure the CAM can perform its intended function including preventing an undetected release of airborne radioactivity to the health and safety of the public, MSTR personnel, or the environment.
5. Section 6.2.1 of the current TS specifies that the Committee shall be composed of at least five members. However, Section 14.6.2.1 of the proposed TS specifies that the Committee shall be composed of at least three members. Provide justification why the Committee specified in the proposed TS is composed of at least three members. Also provide discussion on how the quorum requirement in TS 14.6.2.2 (1) will be met if two of the minimum three members have reactor operation responsibilities.
6. Section 9.2, "Handling and Storage of Reactor Fuel". Provide dimensions of the wall that separates the main pool and the fuel storage pit.
7. Under 10 CFR 50.33(d), "Contents of applications; general information," certain information is required by the applicant, Missouri University of Science and Technology Reactor (MSTR), as applicable. To comply with this regulation, please update the application to include a statement of the organizational form of MSTR (e.g., corporation, etc.), the state where it is incorporated or organized and the principal location where MSTR does business, and the names, addresses and citizenship of directors and principal officers. Also, please state whether the MSTR is owned, controlled, or dominated by an alien, foreign corporation, or foreign government, and if so, give details.

Enclosure

8. Under 10 CFR 50.33(f)(2), "The applicant shall submit estimates for total annual operating costs for each of the first five years of operation of the facility." Provide the projected operating costs of the MSTR for each of the years FY2009 to FY2013 (the first five year period after the projected license renewal) as well as MSTR's primary source(s) of funding that covers the operating costs for the above fiscal years.
9. The supplement to the application indicates that that cost to decommission the MSTR ranges from \$ 1.9 million to \$ 5.8 million depending on the disposal option selected. The staff needs the following additional information to complete its review:
 - a. Selected disposal option and the basis for the disposal option selected.
 - b. MSTR's plans to adjust the level of funds in the escrow account periodically over the life of the MSTR to meet changes in the decommissioning cost estimate.
 - c. Copy of the financial mechanism that reflects the updated decommissioning costs.