

July 31, 2015

Dr. Steven Biegalski, Director
Nuclear Engineering Teaching Laboratory
The University of Texas at Austin
10100 Burnet Rd, Bldg 159
Austin, Texas 78758

SUBJECT: UNIVERSITY OF TEXAS AT AUSTIN - REQUEST FOR ADDITIONAL
INFORMATION REGARDING THE LICENSE RENEWAL REQUEST FOR THE
NUCLEAR ENGINEERING TEACHING LABORATORY TRIGA MARK II
NUCLEAR RESEARCH REACTOR (TAC NO. ME7694)

Dear Dr. Biegalski:

The U.S. Nuclear Regulatory Commission (NRC) is continuing its review of your application for renewal of Facility Operating License No. R-129, for the University of Texas at Austin, dated December 12, 2011, as most recently supplemented on July 15, 2015 (redacted version available on the NRC's public website, www.nrc.gov, in the Agencywide Documents Access and Management System [ADAMS], Accession Nos. ML12156A097 and ML15211A638) respectively.

During our review of your recent submittal, a question has arisen for which we require additional information. Please provide responses to the enclosed request for additional information within 30 days of the date of this letter.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.30(b), "Oath or affirmation," your response must be executed in a signed original 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 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." Any information related to security should be submitted in accordance with 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements." Following receipt of the additional information, we will continue our evaluation of your amendment request.

S. Biegalski

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If you have any questions regarding this review, please contact me at (301) 415-2856 or by electronic mail at Michael.Balazik@nrc.gov.

Sincerely,

/RA by DHardesty for/

Michael F. Balazik, Project Manager
Research and Test Reactors Licensing Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Docket No. 50-602

cc w/encl: See next page

University of Texas at Austin

Docket No. 50-602

cc:

Governor's Budget and
Planning Office
P.O. Box 13561
Austin, TX 78711

Bureau of Radiation Control
State of Texas
1100 West 49th Street
Austin, TX 78756

Dr. William Powers, Jr., President
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P. Michael Whaley, Associate Director
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10100 Burnet Road
Austin, TX 78758

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

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-2-

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cc w/encl: See next page

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ADAMS Accession No: ML15211A362

OFFICE	DPR/PRLB: PM	DPR/PRLB: LA	DPR/PRLB: BC	DPR/PRLB: PM
NAME	MBalazik (DHardesty for)	ELee (w/comment)	AAdams (LTran for)	MBalazik (DHardesty for)
DATE	7/31/2015	7/31/2015	7/31/2015	7/31/2015

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OFFICE OF NUCLEAR REACTOR REGULATION
REQUEST FOR ADDITIONAL INFORMATION
REGARDING LICENSE RENEWAL REQUEST FOR
THE UNIVERSITY OF TEXAS AT AUSTIN
TRIGA MARK II NUCLEAR REACTOR
LICENSE NO. R-129; DOCKET NO. 50-602

The U.S. Nuclear Regulatory Commission (NRC) is continuing its review of your application for renewal of Facility Operating License No. R-129, for the Nuclear Engineering Teaching Laboratory (NETL) TRIGA Mark II Nuclear Research Reactor (the facility) owned by the University of Texas at Austin (UT, the licensee), dated December 12, 2011, as most recently supplemented on July 15, 2015 (available on the NRC's public website, www.nrc.gov, in the Agencywide Documents Access and Management System (ADAMS), Accession Nos. ML12156A097 and ML15211A638).

During the review of your recent submittal for license renewal of the NETL TRIGA Mark II Nuclear Research Reactor (herein referred to as UT TRIGA), the following question has arisen for which we require additional information.

The guidance in NUREG-1537 Section 4.5.2, "Reactor Core Physics Parameters," requests the applicant provide calculations of certain core physics parameters and compare them with applicable measurements. A request for additional information was sent to you in a letter dated July 25, 2012 (ADAMS Accession No. ML15211A638), regarding a comparison of calculated and measured values for reactivity parameters. In response, your submittal dated July 15, 2015 (ADAMS Accession No. ML121500308), provided calculations for control rod worth and excess reactivity in Tables 11 and 12, respectively. In addition, you provided comparisons of these calculations and measurements in Table 13.

- a. In Table 11, your calculations of excess reactivity and control rod worth on 3/16/1992, 7/24/2007, 6/4/2008, 6/11/2008, 6/14/2010, 6/23/2010, 7/25/2011, and 8/2/2012 indicate the shutdown margin for the UT TRIGA reactor would have a positive reactivity. A positive reactivity would not meet Technical Specification 3.2 Shutdown Margin. Please justify why the positive reactivity presents an acceptable level of safety regarding shutdown margin for the UT reactor.
- b. In Tables 11 and 12, your calculations for excess reactivity are consistently higher than the measured values. The average bias between the calculated and measured values is \$2.56. Please justify why this bias presents an acceptable level of agreement in modeling the UT reactor.
- c. Control rod worth in Table 13 appears to be inconsistent. For example, the Regulating Rod worth varies between +12.7% and -21.2%. Specifically, the values for two separate Regulating Rod data points on 7/13/2012, changes from -10.1% to +12.7%. Similarly, Shim-2 worth varies between -23.1% and +30.1%. Please justify why these variations indicate an acceptable level of agreement in modeling the UT reactor.

ENCLOSURE