



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

May 29, 2020

Ms. Amber Johnson, Director
Nuclear Reactor and Radiation Facilities
University of Maryland
Department of Materials Science and Engineering
4418 Stadium Drive, Room 2303
College Park, MD 20742-2115

SUBJECT: UNIVERSITY OF MARYLAND – ISSUANCE OF AMENDMENT NO. 10 TO RENEWED FACILITY OPERATING LICENSE NO. R-70 FOR THE MARYLAND UNIVERSITY TRAINING REACTOR RE: FOR THE USE OF 16 ADDITIONAL TRIGA FUEL ELEMENTS (EPID NO. L-2018-LLA-0037)

Dear Ms. Johnson:

The U.S. Nuclear Regulatory Commission (NRC) has issued the enclosed Amendment No. 10 to Renewed Facility Operating License No. R-70 for the University of Maryland (UMD) Maryland University Training Reactor (MUTR). This amendment consists of changes to the facility operating license and technical specifications (TSs), in response to the MUTR application submitted by letter dated January 29, 2018 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18032A096), as supplemented by letters dated March 26, 2018 (ADAMS Accession No. ML18092A086), June 6, 2019 (ADAMS Accession No. ML19165A021), January 13, 2020 (ADAMS Accession No. ML20016A314), February 24, 2020 (ADAMS Accession No. ML20062A169), March 10, 2020 (ADAMS Accession No. ML20076C347), and May 12, 2020 (ADAMS Accession No. ML20133K121).

The requested amendment authorizes the use of 16 additional fuel elements in the reactor core. This amendment revises UMD License Conditions (LCs) 2.B.2.a., 2.B.2.c., 2.B.2.d., 2.B.2.e., 2.B.2.f., 2.B.3.b., and 2.C.2. This amendment deletes LC 2.B.2.b. In addition, some administrative changes, such as relabeling LCs, were made to the license.

The MUTR TS changes are as follows:

- Revise TS 1.3, "Definitions – Core Configuration," to accurately describe the MUTR core configuration with the inclusion of 16 TRIGA fuel elements;
- Revise TS 3.1, "Reactor Core Parameters," to revise the limiting condition for operations increase in excess reactivity from \$1.12 to \$3.50;
- Revise TS 4.1, "Reactor Core Parameters," to revise the surveillance requirement for the number of fuel bundles to be visually inspected annually; and
- Revise TS 5.3, "Reactor Core and Fuel," to revise the normal core configuration.

A copy of the NRC staff's safety evaluation is enclosed. If you have any questions, please contact me at (301) 415-3398 or by electronic mail at Cindy.Montgomery@nrc.gov.

Sincerely,

/RA/

Cindy K. Montgomery, Project Manager
Non-Power Production and Utilization
Facility Licensing Branch
Division of Advanced Reactors and Non-Power
Production and Utilization Facilities
Office of Nuclear Reactor Regulation

Docket No. 50-166
License No. R-70

Enclosures:

1. Amendment No. 10 to Renewed Facility
Operating License No. R-70
2. Safety Evaluation

cc: w/enclosures: See next page

University of Maryland

Docket No. 50-166

cc:

Director, Maryland Department
of Natural Resources
Power Plant Research Program
Tawes State Office Building
Annapolis, MD 21401

Roland Fletcher, Manager
Radiological Health Program
Maryland Department of the Environment
1800 Washington Blvd., Suite 750
Baltimore, MD 21230

Alan Jacobson, Manager Radiation Safety
University of Maryland
Department of Environmental Safety
Sustainability & Risk
Office of Research Safety
4716 Pontiac Street, Seneca Building
College Park, MD 20742

Dr. Ji-Cheng Zhao, Chair
University of Maryland
Department of Materials Science
and Engineering
University of Maryland
4418 Stadium Drive
College Park, MD 20742-2115

Test, Research and Training
Reactor Newsletter
Attention: Ms. Amber Johnson
University of Maryland
Dept. of Materials Science and Engineering
4418 Stadium Drive
College Park, MD 20742-2115

SUBJECT: UNIVERSITY OF MARYLAND – ISSUANCE OF AMENDMENT NO 10 TO RENEWED FACILITY OPERATING LICENSE NO. R-70 FOR THE MARYLAND UNIVERSITY TRAINING REACTOR RE: FOR THE USE OF 16 ADDITIONAL TRIGA FUEL ELEMENTS (EPID NO. L-2018-LLA-0037 DATED: MAY 29, 2020

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ADAMS Accession No.: Package ML20079E787 Letter ML200693J391 Technical Specifications ML20079F561
 Safety Evaluation ML20070J044 *concurring via e-mail NRR-058

OFFICE	NRR/DANU/UNPL/PM*	NRR/DANU/UNPL/LA*	OGC/NLO *	NRR/DANU/UNPL/BC *	NRR/DANU/UNPL/PM *
NAME	CMontgomery	NParker	MYoung	GCasto	CMontgomery
DATE	3/25/2020	3/25/2020	5/29/2020	5/29/2020	5/29/2020

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UNIVERSITY OF MARYLAND

DOCKET NO. 50-166

MARYLAND UNIVERSITY TRAINING REACTOR

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 10
License No. R-70

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for an amendment to Facility Operating License No. R-70, filed by the University of Maryland (the licensee) on January 29, 2018, as supplemented by letters dated March 26, 2018, June 6, 2019, January 13, 2020, February 24, 2020, March 10, 2020, and May 12, 2020, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended, (the Act) and the Commission's rules and regulations set forth in Title 10 of the *Code of Federal Regulations* (10 CFR) Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance that (i) the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the regulations of the Commission set forth in 10 CFR Chapter I;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public;
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions," of the Commission regulations and all applicable requirements have been satisfied; and
 - F. Prior notice of this amendment was not required by 10 CFR 2.105, "Notice of proposed action," and publication of a notice for this amendment is not required by 10 CFR 2.106, "Notice of issuance."

2. Accordingly, the license is amended as described in Attachment 1 to this license amendment and by changes to the Technical Specifications as indicated in Attachment 2. Paragraphs 2.B.2., 2.B.3., and 2.C.2. of Renewed Facility Operating License No. R-70 are hereby amended to read as follows:

2.B.2. Pursuant to the Act and 10 CFR Part 70, the following activities are included:

- a. to receive, possess, and use, but not separate, in connection with the operation of the facility, up to 4,501 grams of contained uranium-235 enriched to less than 20 percent in the form of TRIGA-type reactor fuel;
- b. to receive, possess, and use, but not separate, in connection with the operation of the facility, up to 15 grams of special nuclear material, of any enrichment, in the form of detectors, fission plates, foils, and solutions;
- c. to receive, possess, and use, but not separate, in connection with the operation of the facility, up to 80 grams of plutonium contained in encapsulated plutonium-beryllium neutron sources;
- d. to receive, possess, and use, but not separate, in connection with the operation of the facility, such special nuclear material as may be produced by the operation of the facility; and
- e. to receive, possess, and use, but not separate, in connection with the operation of the facility, such special nuclear material as may be produced by the operation of other facilities in the form of TRIGA-type reactor fuel.

2.B.3. Pursuant to the Act and 10 CFR Part 30, "Rules of General Applicability to Domestic Licensing of Byproduct Material," the following activities are included:

- a. to receive, possess, and use in connection with operation of the facility, such byproduct material as may be produced by operation of the facility, which cannot be separated except for byproduct material produced in non-fueled reactor experiments.
- b. to receive, possess, and use, but not separate, in connection with operation of the facility, such byproduct materials as may be produced by operation of other facilities in the form of TRIGA-type reactor fuel.

2.C.2. Technical Specifications

The Technical Specifications contained in Appendix A, as revised by Amendment No. 10, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Greg A. Casto, Chief
Non-Power Production and Utilization
Facility Licensing Branch
Division of Advanced Reactors and Non-Power
Production and Utilization Facilities
Office of Nuclear Reactor Regulation

Attachments

1. Changes to Renewed Facility
Operating License No. R-70
2. Changes to Appendix A, "Technical
Specifications"

Date of Issuance: May 29, 2020

ATTACHMENT TO LICENSE AMENDMENT NO. 10

RENEWED FACILITY OPERATING LICENSE NO. R-70

DOCKET NO. 50-166

Replace the following pages of the Renewed Facility Operating License No. R-70 with the revised pages. The revised pages are identified by amendment number and contains marginal lines indicating the area of change.

Renewed Facility Operating License No. R-70

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- G. The issuance of this license will not be inimical to the common defense and security or to the health and safety of the public;
 - H. The issuance of this license is in accordance with 10 CFR Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions," of the Commission's regulations and all applicable requirements have been satisfied; and
 - I. The receipt, possession and use of byproduct and special nuclear materials as authorized by this facility operating license will be in accordance with the Commission's regulations in 10 CFR Part 30, "Rules of General Applicability to Domestic Licensing of Byproduct Material," and 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material."
2. Accordingly, Facility Operating License No. R-70 is hereby renewed in its entirety to read as follows:
- A. This license applies to the Maryland University Training Reactor (herein "the facility") TRIGA-type nuclear research reactor owned by the University of Maryland (herein "the licensee"). The facility is located on the campus of the University of Maryland in College Park, MD, and described in the licensee's application for license renewal, dated May 12, 2000, as supplemented.
 - B. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses the University of Maryland as follows:
 - 1. Pursuant to Subsection 104c of the Act and 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," to possess, use, and operate the facility as a utilization facility at the designated location in accordance with the procedures and limitations described in the application and set forth in this license.
 - 2. Pursuant to the Act and 10 CFR Part 70, the following activities are included:
 - a. to receive, possess, and use, but not separate, in connection with the operation of the facility, up to 4,501 grams of contained uranium-235 enriched to less than 20 percent in the form of TRIGA-type reactor fuel;
 - b. to receive, possess, and use, but not separate, in connection with the operation of the facility, up to 15 grams of special nuclear material, of any enrichment, in the form of detectors, fission plates, foils, and solutions;
 - c. to receive, possess, and use, but not separate, in connection with the operation of the facility, up to 80 grams of plutonium contained in encapsulated plutonium-beryllium neutron sources;
 - d. to receive, possess, and use, but not separate, in connection with the operation of the facility, such special nuclear material as may be produced by the operation of the facility; and

- e. to receive, possess, and use, but not separate, in connection with the operation of the facility, such special nuclear material as may be produced by the operation of other facilities in the form of TRIGA-type reactor fuel.
3. Pursuant to the Act and 10 CFR Part 30, "Rules of General Applicability to Domestic Licensing of Byproduct Material," the following activities are included:
- a. to receive, possess, and use in connection with operation of the facility, such byproduct material as may be produced by operation of the facility, which cannot be separated except for byproduct material produced in non-fueled reactor experiments.
 - b. to receive, possess, and use, but not separate, in connection with operation of the facility, such byproduct materials as may be produced by operation of other facilities in the form of TRIGA-type reactor fuel.
- C. This license shall be deemed to contain, and is subject to the conditions specified in 10 CFR Parts 20, 30, 40, 50, 51, 55, 70, and 73 of the Commission's regulations; is subject to all provisions of the Act, and to the rules, regulations and orders of the Commission now or hereafter in effect, and is subject to the additional conditions specified or incorporated below:
- 1. Maximum Power Level

The licensee is authorized to operate the reactor at a steady-state power level up to a maximum of 250 kilowatts (thermal) in accordance with the limitations in the Technical Specifications.
 - 2. Technical Specifications

The Technical Specifications contained in Appendix A, as revised by Amendment No. 10, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

ATTACHMENT TO LICENSE AMENDMENT NO. 10

RENEWED FACILITY OPERATING LICENSE NO. R-70

DOCKET NO. 50-166

Replace the following pages of Appendix A, "Technical Specifications," with the revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Technical Specifications

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