



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

December 17, 2018

Dr. Ayman I. Hawari, Director  
Nuclear Reactor Program  
Department of Nuclear Engineering  
North Carolina State University  
Campus Box 7909  
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SUBJECT: NORTH CAROLINA STATE UNIVERSITY – ACCEPTANCE OF REQUESTED  
LICENSING ACTION REGARDING FUELED EXPERIMENTS FOR THE  
PULSTAR RESEARCH REACTOR (EPID NO. L-2018-LLA-0500)

Dear Dr. Hawari:

By letter dated December 4, 2018 (Agencywide Documents Access and Management System Accession No. ML18341A237), North Carolina State University (NCSU) submitted a license amendment request (LAR) for the NCSU PULSTAR research reactor. NCSU requested the amendment to revise its license conditions (LCs) and technical specifications (TSs) to allow it to increase the quantity of uranium-235 (U-235) in fueled experiments; to allow it to perform fueled experiments with neptunium-237 or plutonium-239, in addition to U-235; and to allow it to perform vented fueled experiments. The amendment would also make other changes related to fueled experiments, including revising the TS definition of “fueled experiment”; adding or revising requirements for radiation monitoring and ventilation equipment; increasing license possession limits for fissile and fissionable materials to be used in fueled experiments; and revising other fueled experiment requirements. NCSU stated that the amendment would allow the LCs and TSs to accommodate its planned experimental needs.

The purpose of this letter is to provide the results of the U.S. Nuclear Regulatory Commission (NRC) staff’s acceptance review of this LAR. The acceptance review was performed to determine if there is sufficient technical information in scope and depth to allow the NRC staff to complete its detailed technical review. The acceptance review is also intended to identify whether the application has any readily apparent information insufficiencies in its characterization of the regulatory requirements or the licensing basis of the facility.

Consistent with Section 50.90, “Application for amendment of license, construction permit, or early site permit,” of Title 10 of the *Code of Federal Regulations* (10 CFR), whenever a holder of a license desires to amend the license, an application for an amendment must be filed with the Commission, as specified in 10 CFR 50.4, “Written communications,” fully describing the changes desired, and following as far as applicable, the form prescribed for original applications. Section 50.34, “Contents of applications; technical information,” of 10 CFR addresses the content of technical information required. This section stipulates that the submittal address the design and operating characteristics, unusual or novel design features, and principal safety considerations.

The NRC staff has reviewed NCSU's application and concluded that it contains technical information in sufficient detail to enable the NRC staff to begin its detailed technical review to make an independent assessment regarding the acceptability of the proposed amendment in terms of regulatory requirements and the protection of public health and safety and the environment. Given the lesser scope and depth of the acceptance review as compared to the detailed technical review, there may be instances in which issues that impact the NRC staff's ability to complete the detailed technical review are identified despite completion of an adequate acceptance review. NCSU will be advised of any further information needed to support the NRC staff's detailed technical review by separate correspondence.

The NRC staff will perform its review following the guidance of NUREG-1537, "Guidelines for Preparing and Reviewing Applications for the Licensing of Non-Power Reactors."

Based on the information provided in NCSU's LAR, the NRC staff has estimated that this licensing request could be completed in approximately 12 months. If there are emergent complexities or challenges in the NRC staff's review that would cause changes to the initial forecasted completion date, the reasons for the changes, along with the new estimates, will be communicated during the routine interactions with the assigned project manager.

This estimate is based on the NRC staff's initial review of the application and could change due to several factors, including requests for additional information, unanticipated addition of scope to the review, and review by NRC advisory committees or hearing-related activities.

If you have any questions regarding this review, please contact me at 301-415-4067, or by electronic mail at [Edward.Helvenston@nrc.gov](mailto:Edward.Helvenston@nrc.gov).

Sincerely,

*/RA/*

Edward Helvenston, Project Manager  
Research and Test Reactors Licensing Branch  
Division of Licensing Projects  
Office of Nuclear Reactor Regulation

Docket No. 50-297  
License No. R-120

cc: See next page

North Carolina State University

Docket No. 50-297

cc:

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PULSTAR RESEARCH REACTOR DATE: DECEMBER 17, 2018

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