

# NUCLEAR REGULATORY COMMISSION

Docket No. 50-170

## Armed Forces Radiobiology Research Institute

### Exemption

#### I. Background.

The Armed Forces Radiobiology Research Institute (AFRRI, the licensee) holds the U.S. Nuclear Regulatory Commission (NRC, the Commission) Renewed Facility Operating License No. R-84 for the AFRRI Training, Research, Isotopes, General Atomics (TRIGA) reactor (the facility), which is a research reactor located in Montgomery County, Maryland. Under this license, the licensee is authorized to operate the facility up to a steady-state power level of 1.1 megawatts thermal with pulsing capability using reactivity insertions up to 2.45%  $\Delta k/k$ . The license is subject to the rules, regulations, and orders of the NRC.

#### II. Request/Action.

By letter dated September 17, 2021, as supplemented by letter dated October 7, 2021, the licensee requested an exemption from Title 10 of the *Code of Federal Regulations* (10 CFR) 55.31, "How to apply," paragraph (a)(5) and 10 CFR 55.45(b), "Implementation—Administration." 10 CFR 55.31(a)(5) requires an applicant for an operator or senior operator license to provide evidence that the applicant, as a trainee, has successfully manipulated the controls of either the facility for which the license is sought or a plant-referenced simulator; 10 CFR 55.45(b) requires an operating test to be administered to an applicant for an operator or senior operator license in a facility walkthrough and in either the facility, a Commission-approved simulation facility, or a plant-referenced simulator. According to the licensee, these requirements cannot be

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met at the AFRRRI TRIGA reactor because (1) the facility is in a shutdown state pending the NRC's review and approval of a license amendment request for an upgrade to the digital instrumentation and control system and, therefore, is not capable of control manipulations, (2) the facility does not have a Commission-approved simulation facility or a plant-referenced simulator, and (3) there are currently no licensed operators at the facility to supervise control manipulations by applicants for operator or senior operator licenses. Under these circumstances, applicants for operator or senior operator licenses at the facility cannot be trained or tested with respect to control manipulations as is required by 10 CFR 55.31(a)(5) and 10 CFR 55.45(b). In lieu of these requirements, the licensee seeks, via its exemption request, that four named applicants for an AFRRRI operator or senior operator license be allowed to provide evidence that they, as trainees, have successfully manipulated the controls of the Idaho National Laboratory (INL) Neutron Radiography (NRAD) TRIGA reactor and be allowed to take the portion of the operating test requiring control manipulations at the INL NRAD TRIGA reactor.

### **III. Discussion.**

Pursuant to 10 CFR 55.11, "Specific exemptions," the Commission may, upon application by an interested person, or upon its own initiative, grant exemptions from the requirements of 10 CFR part 55, "Operators' Licenses," as it determines (1) are authorized by law, (2) will not endanger life or property, and (3) are otherwise in the public interest.

#### **A. The Exemption Is Authorized by Law**

Exemptions are authorized by law where they are not expressly prohibited by statute or regulation. A proposed exemption is implicitly authorized by law if it will not endanger life or property and is otherwise in the public interest and no other provisions in law prohibit, or otherwise restrict, its application. As discussed in this section of the

NRC's evaluation of the exemption request, no provisions in law prohibit or restrict an exemption to the requirements concerning control manipulations for certain operator training and testing requirements; subsequent sections of this evaluation discuss that the exemption will not endanger life or property and is otherwise in the public interest.

The regulations in 10 CFR part 55 implement Section 107 of the Atomic Energy Act of 1954, as amended (AEA), which sets requirements upon the Commission concerning operators' licenses and states, in part, that the Commission shall (1) prescribe uniform conditions for licensing individuals as operators of any of the various classes of utilization facilities licensed by the NRC and (2) determine the qualifications of such individuals. These requirements in the AEA do not expressly prohibit exemptions from 10 CFR 55.31(a)(5) and 10 CFR 55.45(b), which require that control manipulations related to operator training and testing be performed at the facility for which the operator license is sought, at a plant-referenced simulator, or at a Commission-approved simulation facility, as appropriate. Further, as explained below, the requested exemption would have little impact on the uniformity of operator licensing conditions or on the determination of operator qualifications.

In its exemption request, the licensee explained that the use of the INL NRAD TRIGA reactor would provide reactor physics and thermal hydraulic response characteristics sufficiently similar to those that would be provided at the AFRRRI TRIGA reactor such that the use of the INL NRAD TRIGA reactor could stand in the place of the use of the AFRRRI TRIGA reactor with respect to the required control manipulations for the training and testing of applicants for AFRRRI operator licenses. Additionally, the INL NRAD TRIGA reactor uses similar digital instrumentation and controls, reactor control rod drive mechanisms, and TRIGA fuel assemblies as the AFRRRI TRIGA reactor. Therefore, uniform conditions for operator licensing would be maintained by

using the INL NRAD TRIGA reactor in place of the AFRRRI TRIGA reactor to the extent proposed in the exemption request.

The licensee also explained that using the INL NRAD TRIGA reactor in place of the AFRRRI TRIGA reactor to the extent proposed in the exemption request would not significantly change how the Commission determines the qualifications of operator applicants. Under the exemption, 10 CFR 55.31(a)(5) would continue to require the applicant to perform, at a minimum, five significant control manipulations that affect reactivity or power level and 10 CFR 55.45(b) would continue to require the administration of the operating test in a plant walkthrough that would continue to require the applicant to demonstrate an understanding of and the ability to perform the actions necessary to accomplish a representative sample from among items (1) through (13) in 10 CFR 55.45(a).

Accordingly, because the AFRRRI TRIGA reactor and the INL NRAD TRIGA reactor have similar operating and technical characteristics with respect to control manipulations, an exemption from 10 CFR 55.31(a)(5) and 10 CFR 55.45(b) allowing the use of the INL NRAD TRIGA reactor in lieu of the AFRRRI TRIGA reactor for control manipulations for the training and testing of specific applicants for AFRRRI operator licenses would satisfy the applicable AEA requirements that the Commission prescribe uniform conditions for licensing individuals as operators and determine the qualifications of operators. Additionally, as discussed below, the exemption will not endanger life or property and is otherwise in the public interest. Therefore, the NRC finds that the requested exemption is authorized by law.

**B. The Exemption Will Not Endanger Life or Property**

Control manipulations at the INL NRAD TRIGA reactor would be sufficiently similar and would provide sufficiently similar reactor physics and thermal hydraulic

response characteristics to those at the AFRRRI TRIGA reactor such that the use of the INL NRAD TRIGA reactor could stand in the place of the use of the AFRRRI TRIGA reactor with respect to the required control manipulations for the training and testing of the specified applicants for AFRRRI operator licenses. Since its operating and technical characteristics are similar to those of the AFRRRI TRIGA reactor, the use of the INL NRAD TRIGA reactor by these applicants would allow them to complete the required control manipulations for their training and complete the required evolutions that affect reactivity in 10 CFR 55.45(a)(1) through (13) for their testing. As part of the operator licensing application process, the facility licensee will certify that these applicants have completed the required training for the AFRRRI TRIGA reactor. As part of the operator licensing testing process, the NRC examiners will ensure that these applicants are evaluated to ensure that they are fully capable of operating the AFRRRI TRIGA reactor, while accounting for any differences between the AFRRRI TRIGA reactor and the INL NRAD TRIGA reactor. Therefore, the NRC finds that the training and testing of the specified AFRRRI applicants would satisfy the NRC's training and testing requirements. Accordingly, if ultimately licensed, these applicants would have learned to operate the AFRRRI TRIGA reactor competently and safely and, thus, their licensing would be protective of life and property.

Furthermore, the training and testing of the specified AFRRRI applicants at the INL NRAD reactor would, itself, be protective of life and property. In its exemption request, the licensee provided that the INL NRAD TRIGA reactor has been operational since 1977 with a facility safety analysis and design specifications that meet or exceed NRC requirements. Additionally, the specified AFRRRI applicants would be under the instruction of U.S. Department of Energy qualified reactor operators and reactor supervisors for all of their control manipulations.

Lastly, the licensee has identified and will ensure that the specified AFRRRI applicants are trained on the differences between the AFRRRI TRIGA reactor and the INL NRAD TRIGA reactor.

Based on the above, the NRC finds that the requested exemption will not endanger life or property.

**C. The Exemption Is Otherwise in the Public Interest**

The Commission's values guide the NRC in maintaining certain principles of good regulation as it carries out regulatory activities in furtherance of its safety and security mission. These principles focus the NRC on ensuring safety and security while appropriately considering the interests of the NRC's stakeholders, including the public and licensees. These principles are Independence, Openness, Efficiency, Clarity, and Reliability. Independence relates to NRC decisions being based on objective, unbiased assessments of all information. Openness relates to the NRC conducting its regulatory activities publicly and candidly. Efficiency relates to the NRC ensuring that its regulatory activities are consistent with the degree of risk reduction they achieve; adopting the option, where several effective alternatives are available, that minimizes the use of resources; and making regulatory decisions without delay. Clarity relates to NRC positions being readily understood and easily applied. Reliability relates to established regulations being perceived to be reliable and not unjustifiably in a state of transition. The NRC's principles of good regulation can also provide guidance as to whether the granting of a particular exemption is otherwise in the public interest.

On balance, the NRC's principles of good regulation demonstrate that the granting of the requested exemption is otherwise in the public interest. As an initial matter, the exemption is necessary for the restart of the AFRRRI TRIGA reactor. In its exemption request, the licensee provided that such restart is critical to national defense.

The licensing of the specified applicants for AFRRRI operator licenses would bring the facility into compliance with the staffing and surveillance requirements of its technical specifications and would facilitate the maintenance of its critical systems. Additionally, as clearly, openly, and independently determined above, the licensee's preferred method of training and testing these applicants with respect to control manipulations at the INL NRAD TRIGA reactor will not endanger life or property because the operating and technical characteristics of the INL NRAD TRIGA reactor are sufficiently similar to those of the AFRRRI TRIGA reactor with respect to control manipulations. Therefore, it would be most efficient to approve the licensee's preferred method as opposed to requiring some equally effective alternative method. The requested exemption would also maintain unchanged the substantive requirements upon the specified AFRRRI applicants with respect to training and testing. This would further reliability by allowing these applicants to complete their applications with the underlying requirements unchanged and by allowing the operating test to be conducted with the underlying requirements unchanged. Finally, the exemption would only apply to the training and testing of the four named applicants and would expire thereafter; therefore, the exemption is narrowly tailored to be efficient and to maintain the reliability of the AFRRRI operator licensing program.

Based on the above, the NRC finds that the requested exemption is otherwise in the public interest.

#### **D. Environmental Considerations**

This exemption allows four named applicants for an AFRRRI TRIGA reactor operator or senior operator license to perform their training and testing control manipulations required by 10 CFR 55.31(a)(5) and 10 CFR 55.45(b) at the INL NRAD TRIGA reactor instead of at the AFRRRI TRIGA reactor.

For the following reasons, this exemption meets the eligibility criteria of 10 CFR 51.22(c)(25) for a categorical exclusion. There are no special or extraordinary circumstances present that would preclude reliance on this exclusion. The NRC determined, in accordance with 10 CFR 51.22(c)(25)(vi)(E), that the requirements from which the exemption is sought involve education, training, experience, qualification, requalification, or other employment suitability requirements. The NRC also determined that granting the requested exemption involves no significant hazards consideration because it does not authorize any physical changes to the facility or any of its safety systems or change any of the assumptions or limits used in the facility licensee's safety analyses or introduce any new failure modes; no significant change in the types or significant increase in the amounts of any effluents that may be released offsite because the exemption does not affect any effluent release limits as provided in the facility licensee's technical specifications or by 10 CFR part 20, "Standards for Protection Against Radiation"; no significant increase in individual or cumulative public or occupational radiation exposure because the exemption does not affect limits on the release of any radioactive material or the limits provided in 10 CFR part 20 for radiation exposure to workers or members of the public; no significant construction impact because the exemption does not involve any changes to a construction permit; and no significant increase in the potential for or consequences from radiological accidents because the exemption does not alter any of the assumptions or limits in the facility licensee's safety analyses. In addition, the NRC determined that there would be no significant impacts to biota, water resources, historic properties, cultural resources, or socioeconomic conditions in the region. As such, there are no extraordinary circumstances present that would preclude reliance on this categorical exclusion. Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or



environmental assessment need be prepared in connection with granting the requested exemption.

#### **IV. Conclusion.**

Accordingly, the Commission has determined that, pursuant to 10 CFR 55.11, the exemption is authorized by law, will not endanger life or property, and is otherwise in the public interest. Therefore, effective immediately, the Commission hereby grants AFRRRI an exemption from 10 CFR 55.31(a)(5) and 10 CFR 55.45(b) to allow the four applicants for an AFRRRI TRIGA reactor operator or senior operator license, specified by name in the licensee's letter dated October 7, 2021, to provide evidence that they, as trainees, have successfully manipulated the controls of the INL NRAD TRIGA reactor and to be administered the portion of the operating test requiring control manipulations at the INL NRAD TRIGA reactor. This exemption expires when the training and initial testing of these new applicants is completed.

Dated: October 22, 2021

For the Nuclear Regulatory Commission.



Signed by Shams, Mohamed  
on 10/22/21

Mohamed Shams, Director,  
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