

October 4, 1990

DO NOT REMOVE

Docket No. 50-170

Colonel George W. Irving, III, BSC, USAF
 Director
 Armed Forces Radiobiology Research Institute
 Bethesda, Maryland 20814-5415

Posted
 Amdt. 20 to R-84

Dear Colonel Irving:

SUBJECT: ISSUANCE OF AMENDMENT NO. 20 TO FACILITY OPERATING LICENSE
 NO. R-84 - ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE (AFRRI)

The Commission has issued the enclosed Amendment No. 20 to Facility Operating License No. R-84 for the AFRRI TRIGA Research Reactor. The amendment consists of changes to the Technical Specifications in response to your submittal dated April 30, 1990.

The amendment continues to require inspection of fuel elements that are in the core or returned to the core, but allows deletion of the inspection of fuel elements that are in storage until they are returned to the reactor core and have the requisite operating history. The Technical Specifications are amended to reflect these new fuel element inspection requirements.

A copy of the related Safety Evaluation supporting Amendment No. 20 is enclosed.

Sincerely,

Original signed by:

Marvin M. Mendonca, Senior Project Manager
 Non-Power Reactor, Decommissioning and
 Environmental Project Directorate
 Division of Reactor Projects - III,
 IV, V and Special Projects
 Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 20
2. Safety Evaluation

cc w/enclosures:

See next page

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STW
 PDNP:D
 Sweiss
 10/4/90



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

October 4, 1990

Docket No. 50-170

Colonel George W. Irving, III, BSC, USAF
Director
Armed Forces Radiobiology Research Institute
Bethesda, Maryland 20814-5415

Dear Colonel Irving:

SUBJECT: ISSUANCE OF AMENDMENT NO. 20 TO FACILITY OPERATING LICENSE
NO. R-84 - ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE (AFRI)

The Commission has issued the enclosed Amendment No. 20 to Facility Operating License No. R-84 for the AFRI TRIGA Research Reactor. The amendment consists of changes to the Technical Specifications in response to your submittal dated April 30, 1990.

The amendment continues to require inspection of fuel elements that are in the core or returned to the core, but allows deletion of the inspection of fuel elements that are in storage until they are returned to the reactor core and have the requisite operating history. The Technical Specifications are amended to reflect these new fuel element inspection requirements.

A copy of the related Safety Evaluation supporting Amendment No. 20 is enclosed.

Sincerely,

A handwritten signature in cursive script, appearing to read "Marvin M. Mendonca".

Marvin M. Mendonca, Senior Project Manager
Non-Power Reactor, Decommissioning and
Environmental Project Directorate
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 20
2. Safety Evaluation

cc w/enclosures:
See next page

Armed Forces Radiobiology Research
Institute

Docket No. 50-170

cc: Director, Maryland Office of
Planning
301 West Preston Street
Baltimore, Maryland 21201

County Executive
Montgomery County Government
Rockville, Maryland 20850

Reactor Facility Director
Armed Forces Radiobiology
Research Institute
National Naval Medical Center
Bethesda, Maryland 20814



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

ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE

DOCKET NO. 50-170

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 20
License No. R-84

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment to Facility Operating License No. R-84 filed by the Armed Forces Radiobiology Research Institute (the licensee), dated April 30, 1990, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations as set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the regulations of the Commission;
 - C. There is reasonable assurance: (i) that 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 Commission's regulations 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 of the Commission's regulations and all applicable requirements have been satisfied; and
 - F. Prior notice of this amendment was not required by 10 CFR 2.105(a)(4) and publication of notice for this amendment is not required by 10 CFR 2.106(a)(2).

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the enclosure to this license amendment, and paragraph 2.C.(2) of License No. R-84 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 20, 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 its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Seymour H. Weiss, Director
Non-Power Reactor, Decommissioning and
Environmental Project Directorate
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Enclosure:
Appendix A Technical
Specifications Changes

Date of Issuance: October 4, 1990

ENCLOSURE TO LICENSE AMENDMENT NO. 20

FACILITY OPERATING LICENSE NO. R-84

DOCKET NO. 50-170

Replace the following page of the Appendix A Technical Specifications with the attached page. The revised page is identified by amendment number and contains vertical lines indicating the areas of change.

Remove

22

Insert

22

Specification

Functional checks shall be made annually, but not to exceed 15 months, to insure the following:

- a. With the lead shield doors open, neither exposure room plug door can be electrically opened.
- b. The core dolly cannot be moved into position 2 with the lead shield doors closed.
- c. The warning horn shall sound in the exposure room before opening the lead shield door, which allows the core to move to that exposure room unless cleared by two licensed operators.

BASIS

These functional checks will verify operation of the interlock system. Experience at AFRRRI indicates that this is adequate to insure operability.

4.2.5

REACTOR FUEL ELEMENTS

Applicability

This specification applies to the surveillance requirements for the fuel elements.

Objective

The objective is to verify the integrity of the fuel element cladding.

Specifications

All the fuel elements present in the reactor core, shall be inspected for damage or deterioration, and measured for length and bow at intervals separated by not more than 500 pulses of insertion greater than \$2.00 or annually (not to exceed 15 months), whichever occurs first. Fuel elements in storage need not be inspected and measured until returned to the reactor core.

Basis

The frequency of inspection and measurement is based on the parameters most likely to affect the fuel classing of a pulse reactor, and the utilization fuel elements whose characteristics are well known.

The limit of transverse bend has been shown to result in no difficulty in disassembling the core. Analysis of the removal of heat from touching fuel elements shows that there will be no hot spots that result in damage to the fuel (caused by this touching).



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 20 TO

FACILITY OPERATING LICENSE NO. R-84

ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE

DOCKET NO. 50-170

1.0 INTRODUCTION

By letter dated April 30, 1990, the Armed Forces Radiobiology Research Institute (AFRRI) requested a change in the Technical Specifications for Facility Operating License No. R-84. This change deletes the requirement for inspection of fuel elements in storage, but would continue the requirements for inspection of fuel elements that are in the core or returned to the core.

2.0 EVALUATION

The licensee is currently required to inspect all fuel elements regardless of use or storage. The licensee will continue to inspect all fuel elements that would be subjected to core conditions. Since fuel elements in storage are not subject to the power and temperature changes of fuel elements in the core, damage to the fuel elements in storage is highly unlikely and inspection to identify damage is not needed. This fuel inspection requirement for only fuel subject to core conditions is similar to that at other facilities, and as such, is not unique.

Additionally, the licensee has contained in storage a canister with one fuel element with what appears to be a blister. The licensee is concerned that unnecessary inspection of this fuel element could result in further damage. The licensee does not plan to return this fuel element to the core, and has determined that inspection of the fuel element is not needed.

In summary, there is no decrease in inspection of fuel elements that will be subject to the core conditions. This is not a unique requirement change. The unnecessary inspection of fuel elements in storage can be avoided. There is acceptable assurance that fuel elements subject to possible damage will be inspected and potential deterioration will be found and addressed. Applicable changes to the Technical Specifications have been discussed with and agreed to by the licensee.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves changes in a requirement with respect to the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in

the types, of any effluents that may be released offsite, and there is no significant increase in individual or cumulative occupational radiation exposure. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

4.0 CONCLUSION

The staff has concluded, based on the considerations discussed above, that:

- (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously evaluated, or create the possibility of a new or different kind of accident from any accident previously evaluated, and does not involve a significant reduction in a margin of safety, the amendment does not involve a significant hazards consideration,
- (2) there is reasonable assurance that the health and safety of the public will not be endangered by the proposed activities, and
- (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or the health and safety of the public.

Principal Contributor: Marvin M. Mendonca

Dated: October 4, 1990