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February 27, 2019

U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Attn.: Document Control Desk
Subject: License Amendment Request (LAR) for Reactor Facility Director (RFD) Qualification Tech Spec, Operations Minimum Staff Tech Spec, and Audit Function Tech Spec, Docket No. 50-170, License R-84.

The Armed Forces Radiobiology Research Institute (AFRRI) hereby submits a LAR correction for Facility Operating License No. R-84. The request is for changes to the following Technical Specifications:

6.1.3.1.b. Selection of Personnel, Reactor Facility Director (Enclosure 1, pages 1-2)

The requested changes are to replace the Nov. 8 submission for section 6.1.3.1.b only.

Should you need any further technical information, please contact Mr. Walter (Dale) Tomlinson at (301) 295-9247.

[Handwritten Signature]
John Gilstad, MD
CAPT, MC, USN
Institute Director

I declare under penalty of perjury that the foregoing is true and correct.

Executed on 2019-03-08
Date

[Handwritten Signature]
Signature

Enclosures:
As stated

Copy to:
U.S. Nuclear Regulatory Commission
ATTN: Cindy Montgomery, NRR/DLP/PRLB
Mail Stop 12-D20
Washington, DC 20555-0001

A020
NRR

TS 6.1.3 STAFFING, Specification #1b

Current:

6.1.3.1. Selection of Personnel

b. Reactor Facility Director

At the time of appointment to this position, the Reactor Facility Director shall have six or more years of nuclear experience. The individual shall have a baccalaureate or higher degree in an engineering or scientific field. The degree may fulfill up to four years of experience on a one-for-one basis. The Reactor Facility Director shall have held a USNRC Senior Reactor Operator license on the AFRRRI reactor for at least one year before appointment to this position.

Proposed:

6.1.3.1. Selection of Personnel

b. Reactor Facility Director

At the time of appointment to this position, the Reactor Facility Director shall have six or more years of nuclear experience. The individual shall have a baccalaureate or higher degree in an engineering or scientific field. The degree may fulfill up to four years of experience on a one-for-one basis. The Reactor Facility Director shall have held a USNRC Senior Reactor Operator license on the AFRRRI reactor for at least one year before appointment to this position. **Education and/or experience that is job-related may be substituted for a degree on a case-by-case basis.**

Reason for Proposed Change:

This change ensures that, during times of limited reactor staffing, the individual with the most experience as a Senior Reactor Operator at the AFRRRI reactor can perform the duties of Reactor Facility Director to provide a high degree of operational and safety oversight. The substitution of nuclear experience for a degree is permitted by ANSI/ANS-15.4-2016, paragraph 4.3 which states: Education and/or experience that is job-related may be substituted for a degree on a case-by-case basis.

Safety Review – Technical Specification 6.1.3.1.b

Description of Change

Technical Specification 6.1.3.1.b is being amended to allow the position of Reactor Facility Director (RFD) to be filled by an individual with substantial training and experience who may or may not have a baccalaureate degree in an engineering discipline. Consistent with ANSI/ANS-15.4-2016, “Selection and Training of Personnel for Research Reactors,” Section 4.3, the requirements of at least six years of nuclear experience and a Senior Reactor Operator license are retained, while the requirement of a baccalaureate degree is removed. However, a baccalaureate or higher degree may fulfill up to four years of work experience on a one-for-one basis.

Safety Analysis

The Technical Specifications as currently written do not guarantee that the most experienced and qualified individual working at the AFRRI TRIGA reactor facility will be able to serve as the Reactor Facility Director. The requirement of a baccalaureate or higher degree restricts the ability to promote experienced senior reactor operators to the position of RFD in cases where the individual does not hold such a degree but is still the most experienced and qualified candidate within the organization. This requirement also restricts the pool of qualified individuals who may serve as acting or interim RFD as needed. The requested change will thus improve safety by providing the flexibility to designate the most qualified senior reactor operator as the RFD either permanently or temporarily.

The qualification requirements for the RFD outlined in the Technical Specifications will still meet or exceed all requirements for a Level 2 Facility Manager in ANSI/ANS-15.4-2016, Section 4.3.

At the time of appointment to this position, the Reactor Facility Director shall have six or more years of nuclear experience. The individual shall have a baccalaureate or higher degree in an engineering or scientific field. The degree may fulfill up to four years of experience on a one-for-one basis. The Reactor Facility Director shall have held a USNRC Senior Reactor Operator license on the AFRRI reactor for at least one year before appointment to this position. **Education and/or experience that is job-related may be substituted for a degree on a case-by-case basis.**

c. Reactor Operations Supervisor

At the time of appointment to this position, the Reactor Operations Supervisor shall have three years nuclear experience. Higher education in a scientific or engineering field may fulfill up to two years of experience on a one-for-one basis. The Reactor Operations Supervisor shall hold a USNRC Senior Reactor Operator license on the AFRRI reactor. In addition, the Reactor Operations Supervisor shall have one year of experience as a USNRC licensed Senior Reactor Operator at AFRRI or at a similar facility before the appointment to this position.

d. Reactor Operators/Senior Reactor Operators

At the time of appointment to this position, an individual shall have a high school diploma or equivalent, and shall possess the appropriate USNRC license.

e. Additional reactor staff as required for support and training

At the time of appointment to the reactor staff, an individual shall possess a high school diploma or equivalent.

6.1.3.2. Operations

a. Minimum staff when the reactor is not secured shall include:

1. A licensed Senior Reactor Operator on call, but not necessarily on site;
2. Radiation control technician on call, but not necessarily on site;
3. At least one licensed Reactor Operator or Senior Reactor Operator present in the control room; and

TS 6.2.5 AUDIT FUNCTION

Current:

6.2.5. AUDIT FUNCTION

Audits of reactor facility operations shall be performed under the cognizance of the RRFSS, but in no case by the personnel responsible for the item audited. The audits shall be performed annually, not to exceed 15 months. A report of the findings and recommendations resulting from the audit shall be submitted to the AFRRI Licensee within three months after the report has been received. Deficiencies uncovered that affect reactor safety shall immediately be reported to level one management. Audits may be performed by one or more individuals who need not be RRFSS members. These audits shall examine the operating records and the conduct of operations, and shall encompass the following:

- a. Conformance of facility operation to the Technical Specifications and the license;
- b. Performance, training, and qualifications of the reactor facility staff;
- c. Results of all actions taken to correct deficiencies occurring in facility equipment, structures, systems, or methods of operation that affect safety;
- d. Facility emergency plan and implementing procedures;
- e. Facility Physical Security Plan;
- f. Any other area of facility operations considered appropriate by the RRFSS or the AFRRI Licensee; and
- g. Reactor Facility ALARA Program. This program may be a section of the total AFRRI program.

Proposed:

6.2.5. AUDIT FUNCTION

Audits of reactor facility operations shall be performed under the cognizance of the RRFSS, but in no case by the personnel responsible for the item audited. The audits shall be performed **either annually, not to exceed 15 months, or biennially, not to exceed 30 months. The audit frequency is indicated below for each item (in parenthesis).** A report of the findings and recommendations resulting from the audit shall be submitted to the

AFRRI Licensee within three months after the report has been received. Deficiencies uncovered that affect reactor safety shall immediately be reported to level one management. Audits may be performed by one or more individuals who need not be RRFSS members. These audits shall examine the operating records and the conduct of operations, and shall encompass the following:

- a. Conformance of facility operation to the Technical Specifications and the license **(annually)**;
- b. Performance, training, and qualifications of the reactor facility staff **(biennially)**;
- c. Results of all actions taken to correct deficiencies occurring in facility equipment, structures, systems, or methods of operation that affect safety **(annually)**;
- d. Facility emergency plan and implementing procedures **(biennially)**;
- e. Facility Physical Security Plan **(biennially)**;
- f. Any other area of facility operations considered appropriate by the RRFSS or the AFRRI **Director (annually)**; and
- g. Reactor Facility ALARA Program. This program may be a section of the total AFRRI program **(annually)**.

Reason for Proposed Change:

These changes are necessary to correct problems that resulted in the issuance of a Notice of Violation on July 5, 2018. This submittal completes the corrective actions to which we committed in our Notice of Violation reply letter dated August 1, 2018.

Section 6.2.5 is updated to differentiate between those items that require annual audit and those that require biennial audit in order to comply with relevant standards and also ensure that related documents are reviewed on a schedule that promotes clarity, consistency and safety.

ANSI/ANS-15.1-2007, paragraph 6.2.4(1) requires an annual audit of conformance of facility operations to the technical specifications (item a). ANSI/ANS-15.1-2007, paragraph 6.2.4(3) requires an annual audit of the results of all actions taken to correct deficiencies occurring in facility equipment, structures, systems, or methods of operation (item c). Items f and g are also placed on an annual audit schedule as the ALARA Program and all other facility operations are directly relevant to equipment and systems affecting safety. Auditing these systems concurrently will ensure maximum clarity and safety.

ANSI/ANS-15.1-2007, paragraph 6.2.4(2) specifies a biennial audit for the reactor operator requalification plan (item b) and paragraph 6.2.4(4) requires a biennial audit of the reactor facility emergency plan (item d). The reactor Physical Security Plan (item e) is placed on the same audit cycle as items b and d to ensure that issues of safety and security which are important in all three documents are addressed and updated in a consistent manner. This will improve communication, shared understanding, and more effective and safe day-to-day operations during, and between, audit periods.

6.2.5. AUDIT FUNCTION

Audits of reactor facility operations shall be performed under the cognizance of the RRFSS, but in no case by the personnel responsible for the item audited. The audits shall be performed either annually, not to exceed 15 months, or biennially, not to exceed 30 months. The audit frequency is indicated below for each item (in parenthesis). A report of the findings and recommendations resulting from the audit shall be submitted to the AFRRI Licensee within three months after the report has been received. Deficiencies uncovered that affect reactor safety shall immediately be reported to level one management. Audits may be performed by one or more individuals who need not be RRFSS members. These audits shall examine the operating records and the conduct of operations, and shall encompass the following:

- a. Conformance of facility operation to the Technical Specifications and the license (annually);
- b. Performance, training, and qualifications of the reactor facility staff (biennially);
- c. Results of all actions taken to correct deficiencies occurring in facility equipment, structures, systems, or methods of operation that affect safety (annually);
- d. Facility emergency plan and implementing procedures (biennially);
- e. Facility Physical Security Plan (biennially);
- f. Any other area of facility operations considered appropriate by the RRFSS or the AFRRI Director (annually); and
- g. Reactor Facility ALARA Program. This program may be a section of the total AFRRI program (annually).

6.3. PROCEDURES

Written procedures for certain activities shall be approved by the Reactor Facility Director and reviewed by the RRFSS. The procedures shall be adequate to ensure safe operation of the reactor, but shall not preclude the use of independent judgment and action as deemed necessary. Operational procedures shall be used for the following items:

- a. Conduct of irradiation and experiments that could affect the operation and safety of the reactor;
- b. Surveillance, testing, maintenance, and calibration of instruments, components, and systems involving nuclear safety;

Safety Review – Technical Specification 6.2.5

Description of Change

Technical Specification 6.2.5 is modified to distinguish between those items that need to be audited annually and those that require biennial audit.

Item b involves the audit of the Operator Requalification Program. ANSI/ANS-15.1-2007, paragraph 6.2.4(2) specifies a biennial audit.

Item d involves the reactor Emergency Plan for which ANSI/ANS-15.1-2007, paragraph 6.2.4(4) specifies a biennial audit.

Item e involves the reactor Physical Security Plan (PSP) which is reviewed biennially per the PSP.

Items b, d and e are thus reviewed biennially and the word “biennial” is added in parenthesis at the end of each sentence. Items a, c, f and g are reviewed annually and thus the word “annual” is added in parenthesis at the end of each sentence.

Safety Analysis

AFRRI’s Technical Specifications as currently written are not sufficiently specific regarding the frequency of required audits. These changes are not substantive and will lessen the confusion without negatively impacting the efficiency and safety of reactor operations. The changes will make AFRRI’s Technical Specifications compliant with ANSI/ANS-15.1-2007, AFRRI’s Physical Security plan and AFRRI’s Emergency plan.

The specific frequency of each audit (either annual or biennial) is now clearly stated to avoid confusion and the frequencies are based on the relevance and potential overlap of certain documents with respect to one another.

Conducting the audit of the reactor Physical Security Plan concurrently with the biennial audits of the Operator Requalification Program and reactor Emergency Plan ensures that consistency is maintained across all three documents, providing maximum assurance that proper safety and security procedures are followed at all times by all individuals, regardless of their role.

Conducting audits of technical documents and the ALARA program annually will ensure that issues are identified and resolved in a timely manner, lowering the probability of a technical malfunction or procedural error leading to an unsafe condition or accident. This audit cycle is also compliant with ANSI/ANS-15.1-2007, section 6.2.4.