



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

January 14, 2022

Colonel M. Naaem, Director  
Armed Forces Radiobiology Research Institute  
4301 Jones Bridge Road, Building 42  
Bethesda, MD 20889-5648

SUBJECT: ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE – U.S. NUCLEAR  
REGULATORY COMMISSION ROUTINE INSPECTION REPORT  
NO. 05000170/2021203

Dear Colonel Naaem:

From November 29-30, 2021, the U.S. Nuclear Regulatory Commission (NRC) conducted an inspection at the Armed Forces Radiobiology Research Institute (AFRRI) reactor facility. The enclosed report documents the inspection results which were discussed on November 30, 2021, with LTC J. Brown and members of the AFRRI staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, and interviewed personnel. Based on the results of this inspection, no findings of significance were identified. No response to this letter is required.

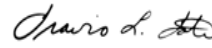
In accordance with Title 10 of the *Code of Federal Regulations*, Section 2.390, "Public inspections, exemptions, requests for withholding," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component NRC's document system (Agencywide Documents Access and Management System (ADAMS)). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

A. Cook

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If you have any questions concerning this inspection, please contact Mr. Phil O'Bryan at 301-415-0266, or by electronic mail at [Phil.O'Bryan@nrc.gov](mailto:Phil.O'Bryan@nrc.gov).

Sincerely,



Signed by Tate, Travis  
on 01/14/22

Travis L. Tate, Chief  
Non-Power Production and Utilization Facility  
Oversight Branch  
Division of Advanced Reactors and Non-Power  
Production and Utilization Facilities  
Office of Nuclear Reactor Regulation

Docket No. 50-170  
License No. R-84

Enclosure:  
As stated

cc: See next page

Armed Forces Radiobiology Research Institute

Docket No. 50-170

cc:

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Colonel Mohammad Naeem, Director  
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SUBJECT: ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE – U.S. NUCLEAR  
REGULATORY COMMISSION ROUTINE INSPECTION REPORT  
NO. 05000170/2021203 DATED: JANUARY 14, 2022

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<b>DATE</b>	1/5/2022	1/5/2022	1/14/2022

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**U.S. NUCLEAR REGULATORY COMMISSION**  
**OFFICE OF NUCLEAR REACTOR REGULATION**

Docket No.: 50-170

License No.: R-84

Report No.: 05000170/2021203

Licensee: Armed Forces Radiobiology Research Institute

Facility: Armed Forces Radiobiology Research Institute TRIGA Reactor

Location: Bethesda, MD

Dates: November 29-30, 2021

Inspectors: Phil O'Bryan  
Dori Willis  
Molly Keefe-Forsyth  
Nicole Coleman

Approved by: Travis L. Tate, Chief  
Non-Power Production and Utilization Facility  
Oversight Branch  
Division of Advanced Reactors and Non-Power  
Production and Utilization Facilities  
Office of Nuclear Reactor Regulation

Enclosure

## **EXECUTIVE SUMMARY**

Armed Forces Radiobiology Research Institute  
Research Reactor Facility  
U.S. Nuclear Regulatory Commission  
Inspection Report No. 05000170/2021203

The primary focus of this follow-up inspection included the onsite review of the Armed Forces Radiobiology Research Institute (AFRRI) safety culture and safety-conscious work environment (SCWE) in response to the Chilled Environment Letter issued to AFRRI on March 18, 2020. In addition, the inspectors reviewed the implementation of the AFRRI's actions taken as required by Confirmatory Order EA-20-056 (Order), which was issued November 19, 2020, in response to an AFRRI employee placed on a 2-day suspension without pay, in part, for engaging in protected activity. The inspectors found that the elements of the Order were implemented within the time constraints specified in the Order.

## REPORT DETAILS

The AFRRRI Training, Research, Isotopes, General Atomics (TRIGA) research reactor normally operates in support of research, experiments, education, reactor operator training and periodic equipment surveillance. However, since March of 2018, the reactor has been shut down pending a reactor console modification.

### 1. Confirmatory Order EA-2020-056

#### a. Inspection Scope

On March 18, 2020, the U.S. Nuclear Regulatory Commission (NRC) issued a letter informing AFRRRI about concerns with the SCWE at AFRRRI (Chilled Work Environment for Raising Concerns at the Armed Forces Radiobiology Research Institute EA-20-015, ADAMS Accession Number ML20070K841). The NRC concluded that AFRRRI staff members were hesitant to raise nuclear safety concerns or regulatory issues to upper management at AFRRRI because of their belief that AFRRRI staff were retaliated against by upper management for raising these concerns. During the current inspection, the inspectors conducted SCWE interviews of fifteen employees from AFRRRI, including a mix of military and civilian personnel, and managers, to determine (1) the willingness of the employees to raise nuclear concern to management at AFRRRI; (2) whether they received training on SCWE; and (3) whether they were aware of the Employee Concerns Program. Inspectors also reviewed documents related to the Order.

On November 19, 2020, the NRC issued Confirmatory Order EA-2020-056 as a result of an agreement reached during an alternate dispute resolution (ADR) mediation session conducted in September 2020. The Order was issued in response to an NRC Office of Investigation that substantiated that an AFRRRI employee was subjected to a 2-day suspension without pay, in part, for engaging in protected activity. As part of the ADR settlement agreement, the licensee committed to implement several actions associated with SCWE at the site.

#### b. Observations

The inspectors reviewed the agreed upon elements of the Order and found them to be implemented as required by the Order and the elements were completed within the time constraints specified in the Order. The inspection included several documents associated with these elements, including a review of the AFRRRI Nuclear Safety Culture (NSC) Policy Statement dated October 14, 2021, AFRRRI Employee Concerns Program dated September 15, 2021, and the SCWE Program dated October 14, 2021.

The following is a description of those elements and a summary of the verifications that were performed by the inspectors.

#### Communication

- Within 60 calendar days of issuance of the Order, the Uniformed Services University (USU) President shall issue a written statement communicating the specific strategy to improve AFRRRI's NSC.
- The communication is to include (1) a brief summary regarding the employee protection regulations, (2) the NRC's concerns expressed in its March 18,

- 2020, chilling effect letter, (3) specific lessons learned from previously applied corrective actions, and (4) corrective actions both taken and planned.
- USU shall provide a copy of this communication to the NRC for prior review.
  - NRC shall provide comments within 1 week of receipt of the draft communication.
  - Within 90 calendar days of the USU President's statement, AFRRRI shall hold all-hands meetings for management to discuss the importance of the communication, described in the section above, with AFRRRI employees.
  - AFRRRI shall conduct the all-hands meetings on multiple levels of management (i.e., AFRRRI Director, Department Heads), with current employees. AFRRRI employees must attend at least one of the all-hands meetings.
  - AFRRRI shall require participants to sign-in, confirming their attendance. Employees unable to attend an in-person/virtual meeting, shall confirm their receipt of the communication by completing a "Read and Sign."
  - Future AFRRRI employees shall complete this requirement via a "Read and Sign."

To verify proper implementation of the Order requirements related to communication, the inspectors: (1) reviewed the related written communications and their distribution, (2) reviewed minutes and attendance from AFRRRI's all-hands meetings, (3) reviewed "Read and Sign" records, and (4) interviewed AFRRRI employees. The inspectors determined that the agreed upon elements of the Order related to communication were implemented as required by the Order and all elements were completed within the time constraints specified in the Order.

#### Nuclear Safety Culture

- Within 150 calendar days of issuance of the Order, AFRRRI shall ensure its NSC policy, guidance, and related materials are in place and updated.
- AFRRRI shall ensure that a distinct and comprehensive NSC Policy is updated and maintained, and is consistent with the NRC's June 14, 2011, Safety Culture Policy Statement and associated traits.
- The NSC Policy shall include specific definitions for key safety culture terms, including examples of what constitutes a protected activity and safety/security concern(s).
- The NSC Policy shall incorporate guidance from NUREG-2165, "Safety Culture Common Language," and the industry's common language initiative (i.e., INPO 12-012, Revision 1, April 2013).
- Copies of NSC Policy, guidance, and related materials shall be provided to the NRC for review at least 60 calendar days prior to issuance.
- NRC will provide comments to AFRRRI within 2 weeks of receipt of the document(s)/material(s).
- Within 45 days of receiving communication that NRC's review is complete, AFRRRI will either incorporate NRC's comments or provide acknowledgement of NRC's comments and state why NRC's comments were not incorporated.
- AFRRRI will distribute copies of the NSC Policy, guidance, and related materials to AFRRRI employees and inform AFRRRI employees how to access the documents and materials. These materials shall be maintained and provided to all new AFRRRI employees during initial employee orientation.



- AFRRRI shall require both current and new AFRRRI employees to confirm their receipt of the NSC Policy, guidance, and related materials by completing a “Read and Sign.”

### SCWE Program

- Within 180 calendar days of issuance of the Order, AFRRRI shall establish a nuclear SCWE program.
- AFRRRI shall ensure that the SCWE program is consistent with the NRC Safety Conscious Work Environment Policy Statement and associated guidance (i.e., NRC’s May 14, 1996, policy statement “Freedom of Employees in the Nuclear Industry to Raise Safety Concerns Without Fear of Retaliation,” and the NRC’s Regulatory Issue Summary 2005-18, “Guidance for Establishing and Maintaining a Safety Conscious Work Environment”).
- Initial SCWE program documents (guidance and related materials) shall be provided to the NRC for review at 60 calendar days prior to issuance.
- NRC will provide comments to AFRRRI, within 2 weeks of receipt of the documents.
- Within 45 days of receiving communication that NRC’s review is complete, AFRRRI will either incorporate NRC’s comments or provide acknowledgement of NRC’s comments and state why NRC’s comments were not incorporated.
- AFRRRI will distribute copies of the SCWE program documents and materials to AFRRRI employees and inform AFRRRI employees how to access the documents and materials. These materials shall be maintained and provided to all new AFRRRI employees during initial employee orientation.
- AFRRRI shall require both current and future AFRRRI employees to confirm their receipt of the materials by completing a “Read and Sign.” Within the SCWE program, AFRRRI shall document the requirements related to the Safety Culture Program Officer (Program Officer) to include the following:
  1. The Program Officer function will report directly to the AFRRRI Director.
  2. The Program Officer shall complete specific training addressing topics such as intake of allegations/safety concerns and trending of concerns (e.g., National Association of Employee Concerns Professional’s Employee Concerns Program basics course, or similar training). This training shall be completed within 180 days of designation as the Program Officer.
  3. The Program Officer shall assist the AFRRRI Director in management and execution of the SCWE program to include the intake and processing of reported safety concerns.
  4. The Program Officer shall review AFRRRI communications related to safety culture messaging and provide feedback.
  5. The Program Officer shall encourage better communication between nuclear materials safety and security committees associated with AFRRRI.

To verify proper implementation of the Order requirements related to AFRRRI’s NSC and SCWE program, the inspectors: (1) interviewed AFRRRI employees, (2) reviewed AFRRRI’s NSC policy and SCWE program documents to verify content required by Order incorporated, (3) reviewed “Read and Sign” records, (4) reviewed training material completed by AFRRRI’s Safety Culture Program Officer, and (5) verified that that the Program Officer reports directly to the AFRRRI Director. The inspectors determined that the agreed upon elements of the Order related to AFRRRI’s NSC policy and SCWE program were implemented as

required by the Order and all elements were completed within the time constraints specified in the Order.

### Training

- Within 210 calendar days of issuance of the Order, AFRRRI shall develop and/or revise its employee protection, NSC and SCWE training for all AFRRRI employees and supervisors.
- Training shall include the following:
  1. Case studies of discriminatory practices;
  2. Definitions of key industry terms/common language;
  3. Behavioral expectations with regard to each NSC trait as defined in NRC's June 14, 2011, Safety Culture Policy Statement;
  4. Expectations for demonstrating support for raising nuclear safety concerns without fear of retaliation; and
  5. A statement that all employees have the right to raise nuclear safety concerns to USU/AFRRRI, the NRC and Congress, or engage in any other type of protected activity without disciplinary action or retaliation, as well as, providing a list of available reporting avenues.
- Supervisory Training: In addition to the content areas described within the paragraph above, supervisory training shall also include expectations specific to the role of management and include discussion on (1) effectively managing safety concerns and (2) ensuring employees feel comfortable raising concerns. Additional supervisory training requirements include:
  1. The supervisory training shall be conducted by either the independent third party organization hired to assist AFRRRI, or AFFRI employees trained by the independent third-party organization.
  2. The initial supervisory training shall be completed within 210 calendar days after the issuance of the Order.
  3. AFRRRI shall conduct instructor-led training for any new supervisors hired after the initial training, as part of the supervisor's initial training.
  4. Training records shall be retained for 4 years after the completion of applicable training and made available to the NRC upon request.
  5. All training material shall be made available to the NRC upon request.
- Employee (Non-Supervisory) Training: The initial AFRRRI employee training described in the paragraph above shall be conducted by AFRRRI employees trained by the team who developed the training. Additional non-supervisory training requirements include:
  1. The initial AFRRRI employee training shall be primarily instructor-led and all AFRRRI employee training shall commence within 180 calendar days after the issuance of the Order.
  2. All initial AFRRRI employee training must be completed within 330 calendar days of the issuance of the Order.
  3. All training material shall be made available to the NRC upon request.
- The training described in the paragraphs above is applicable to all AFRRRI employees and management who are engaged in work associated with NRC-regulated activities.

- AFRRRI shall provide all initial training materials to the NRC for review at least 60 calendar days prior to conducting training.
- NRC will provide comments to AFRRRI within 2 weeks of receipt of the documents.
- Within 45 days of receiving communication that NRC's review is complete, AFRRRI will either incorporate NRC's comments or provide acknowledgement of NRC's comments and state why NRC's comments were not incorporated.

To verify proper implementation of the Order requirements related to training, the inspectors: (1) reviewed the related training materials for content as required by the Order, (2) reviewed associated attendance records, and (3) interviewed AFRRRI employees. The inspectors determined that the agreed upon elements of the Order related to the training requirements described within this document was implemented as required by the Order and all elements were completed within the time constraints specified in the Order.

#### Independent Third-Party Organization

- Within 120 calendar days of the issuance of the Order, AFRRRI will hire an independent third-party organization to assist AFRRRI with updates to its NSC Policy and the establishment of its SCWE program and associated tasks, as described within the Order. AFRRRI may utilize the same organization as described in the paragraph above.
- The independent third-party organization shall be unrelated to the proceedings at issue and experienced within NRC employee protection regulations, Section 211 of the Energy Reorganization Act, as amended, and NSC and SCWE policies/programs.
- AFRRRI shall receive assistance from the independent third-party organization for the following tasks:
  1. Initial revisions/updates to AFRRRI's NSC Policy to ensure that AFRRRI guidance is consistent with NRC and industry guidance.
  2. Establishment of AFRRRI's SCWE program.
  3. Development and implementation of AFRRRI's initial NSC and SCWE program assessment.
- AFRRRI will ensure that the independent third-party organization is provided all materials to comprehensively assist AFRRRI, including NRC inspection reports associated with AFRRRI's SCWE and the March 18, 2020, Chilling Effect Letter.

To verify proper implementation of the Order requirements related to an independent third-party organization, the inspectors: (1) reviewed acquisition documentation securing the independent third-party organization, (2) reviewed policy and program documents associated with the Order and supported by the independent third-party organization, and (3) interviewed AFRRRI employees.

#### Work Process

- Within 270 calendar days of the issuance of the Order, AFRRRI will develop a program for AFRRRI employees to raise nuclear safety and security concerns.
- The program shall include the following:

1. An electronic, telephonic or physical reporting mechanism for AFRRRI employees to submit nuclear safety or security concerns. This mechanism shall allow for both standard and anonymous submission capability.
2. A means to evaluate information collected through the available reporting mechanisms in order to analyze the data related to AFRRRI's NSC over time.
3. A means to ensure AFRRRI's NSC Policy, SCWE program, and associated guidance/materials are readily accessible for employee viewing.
4. The opportunity for departing AFRRRI employees to participate in an exit interview/survey to facilitate identification of nuclear safety issues, resulting trends and conclusions.

To verify proper implementation of the Order requirements related to work processes, the inspectors: (1) interviewed AFRRRI employees, (2) verified that AFRRRI developed several reporting mechanisms for reporting nuclear safety or security concerns, and (3) reviewed documents and forms supporting the implementation of the Order requirements. The inspectors determined that AFRRRI implemented an Employee Concerns Program and Safety Culture Committee in order to investigate employee concerns and develop actions to address the concerns, as required by the Order requirement "Work Process." The inspectors determined that AFRRRI developed procedures for these programs and assigned a mix of military and civilian personnel to implement them to ensure that the programs were sustainable considering the turnover of the military personnel.

c. Conclusion

The inspectors determined that all employees interviewed stated they would feel free to raise nuclear safety concerns through all avenues, and up and down the chain of command, without fear of retaliation. Based on AFRRRI's progress to date in responding to the Order, inspectors found that AFRRRI's actions to address existing SCWE issues have improved the environment for raising concerns, ensuring that individuals are permitted to pursue resolution of issues without fear of retaliation. Inspectors determined that AFRRRI is implementing its SCWE program in accordance with the Order.

No findings of significance were identified and the conditions of the Order, inspected as described above, were met. The NRC will continue to monitor the work environment at AFRRRI.

2. Exit Meeting

The inspection scope and results were presented on November 30, 2021, to Lieutenant Colonel Brown and members of the AFRRRI staff. No dissenting comments were received from the licensee.

**PARTIAL LIST OF PERSONS CONTACTED**

Licensee Personnel

COL M. Naeem	Director, AFRRRI
LTC J. Brown	AFRRRI Chief of Staff
LTC O. Makinde	Director of AFRRRI Radiation Science Department
A. Cook	Interim Reactor Facility Director

**INSPECTION PROCEDURES USED**

IP 93100	Safety-Conscious Work Environment Issue of Concern Follow-up
IP 92702	Follow-Up on Traditional Enforcement Actions Including Violations, Deviations, Confirmatory Action Letters, and Orders

**ITEMS OPENED AND CLOSED**

None