



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

May 10, 2019

Captain John Gilstad, Director
Armed Forces Radiobiology
Research Institute
National Naval Medical Center
8901 Wisconsin Avenue
Bethesda, MD 20889-5603

SUBJECT: ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE – NUCLEAR
REGULATORY COMMISSION FOLLOW-UP INSPECTION REPORT
NO. 05000170/2019202 AND NOTICE OF VIOLATION

Dear Captain Gilstad:

From April 9-10, 2019, the U.S. Nuclear Regulatory Commission (NRC) conducted a follow-up inspection at the Armed Forces Radiobiology Research Institute (AFRRI) reactor facility, using Inspection Procedure 92701, "Followup." The purpose of this follow-up inspection was to conduct a review of the unresolved item (URI) pertaining to the AFRRI reactor console replacement, which was documented in NRC Inspection Report No. 05000170/2018201, dated July 5, 2018, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18178A092) as URI 05000170/2018201-01. The enclosed report documents the results of this follow-up inspection, which was discussed on April 10, 2019, with you and members of your staff.

The inspection examined activities conducted under your license as they relate to public health and safety, and to confirm compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel.

Based on the results of this follow-up inspection, the NRC has determined that a Severity Level IV violation of NRC requirements occurred. The violation was evaluated in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's Web site at <https://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html>. The violation is cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding it are described in detail in the subject inspection report. The violation is being cited in the Notice because it constitutes a failure to meet regulatory requirements that has more than minor safety significance and the licensee failed to identify the violation.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. If you have additional information that you believe the NRC should consider, you may provide it in your response to the Notice. The NRC review of your response to the Notice will also determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

In accordance with Title 10 of the *Code of Federal Regulations* Part 2, "Agency Rules of Practice and Procedure," a copy of this letter, its enclosure(s), and your response will be made available electronically for public inspection in the NRC Public Document Room or from ADAMS, accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy or proprietary information so that it can be made available to the Public without redaction.

If you have any questions concerning this inspection, please contact Michael Takacs at 301-415-2042, or by electronic mail at Michael.Takacs@nrc.gov.

Sincerely,

/RA/

Anthony J. Mendiola, Chief
Research and Test Reactors Oversight Branch
Division of Licensing Projects
Office of Nuclear Reactor Regulation

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

Enclosures:

1. Notice of Violation
2. NRC Inspection Report
No. 05000170/2019202

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, MD 21201

Montgomery County Executive
101 Monroe Street, 2nd Floor
Rockville, MD 20850

Environmental Program Manager III
Radiological Health Program
Air & Radiation Management Adm.
Maryland Dept of the Environment
1800 Washington Blvd., Suite 750
Baltimore, MD 21230-1724

Director
Air & Radiation Management Adm.
Maryland Dept of the Environment
1800 Washington Blvd., Suite 710
Baltimore, MD 21230

Test, Research and Training
Reactor Newsletter
Attention: Amber Johnson
Dept of Materials Science and Engineering
University of Maryland
4418 Stadium Drive
College Park, MD 20742-2115

Manager
Nuclear Programs
Maryland Department of Natural Resources
Tawes B-3
Annapolis, MD 21401

Mr. Walter Dale Tomlinson
Interim Reactor Facility Director
Armed Forces Radiobiology Research Institute
4555 South Palmer Road, Building 42
Bethesda, MD 20889-5648

SUBJECT: ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE – NUCLEAR
 REGULATORY COMMISSION FOLLOW-UP INSPECTION REPORT
 NO. 05000170/2019202 AND NOTICE OF VIOLATION DATE: MAY 10, 2019

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ADAMS Accession No.: ML19114A479 ***concurrent via email** **NRC-002**

OFFICE	NRR/DLP/PROB/SS*	NRR/DLP/PROB/LA*	NRR/DLP/PROB/BC
NAME	MTakacs	NParker	AMendiola
DATE	4/29/2019	4/29/2019	5/10/2019

OFFICIAL RECORD COPY

NOTICE OF VIOLATION

Armed Forces Radiobiology
Research Institute

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

During a U.S. Nuclear Regulatory Commission (NRC) follow-up inspection conducted April 9-10, 2019, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

Title 10 of the *Code of Federal Regulations* (10 CFR) 50.59(c)(1)(ii) states, that “A licensee may make changes in the facility as described in the final safety analysis report (as updated), make changes in the procedures as described in the final safety analysis report (as updated), and conduct tests or experiments not described in the final safety analysis report (as updated) without obtaining a license amendment pursuant to Sec. 50.90 only if: [T]he change, test, or experiment does not meet any of the criteria in paragraph (c)(2) of this section.”

Section 50.59(d)(1) of 10 CFR states, that “The licensee shall maintain records of changes in the facility, of changes in procedures, and of tests and experiments made pursuant to paragraph (c) of this section. These records must include a written evaluation which provides the bases for the determination that the change, test, or experiment does not require a license amendment pursuant to paragraph (c)(2) of this section.”

Contrary to the requirements referenced above, the NRC inspector found that the licensee had installed a new reactor console and performed several reactor startups for low power testing, but failed to complete the written evaluation to include all of the items specified under 10 CFR 50.59(c)(2). Specifically, the licensee’s 10 CFR 50.59 evaluation of the new reactor console, dated March 2, 2018, did not address item 10 CFR 50.59(c)(2)(iv), “Result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the final safety analysis report (as updated).” Furthermore, low power testing with the new reactor console occurred during the months of March, April, and May of 2018, without a completed 10 CFR 50.59 evaluation.

This has been determined to be a Severity Level IV violation, Section 6.1.d. of the Enforcement Policy.

Pursuant to the provisions of 10 CFR 2.201, “Notice of violation,” the Armed Forces Radiobiology Research Institute is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a “Reply to a Notice of Violation” and should include: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an Order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (Agencywide Documents Access and Management System), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>, to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements."

In accordance with 10 CFR 19.11, "Posting of notices to workers," you may be required to post this Notice within two working days of receipt.

Dated this 10th day of May 2019

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

Docket No.: 50-170

License No.: R-84

Report No.: 05000170/2019202

Licensee: Armed Forces Radiobiology Research Institute

Facility: AFRRRI Research Reactor Facility

Location: Bethesda, MD

Dates: April 9 - 10, 2019

Inspector: Michael Takacs

Approved by: Anthony J. Mendiola, Chief
Research and Test Reactors Oversight Branch
Division of Licensing Projects
Office of Nuclear Reactor Regulation

EXECUTIVE SUMMARY

Armed Forces Radiobiology Research Institute
AFRRI Research Reactor Facility
NRC Inspection Report No. 05000170/2019202

The primary focus of this inspection was to follow-up on the unresolved item (URI) regarding the Armed Forces Radiobiology Research Institute (AFRRI) new reactor console, which was documented in the U.S. Nuclear Regulatory Commission (NRC) Inspection Report No. 05000170/2018201, dated July 5, 2018 (Agencywide Documents Access and Management System Accession No. ML18178A092) as URI 05000170/2018201-01.

Followup

- The follow-up inspection of the URI for the new reactor console has resulted in the closure of the URI and the issuance of a violation (VIO) pertaining to the new reactor console.

REPORT DETAILS

Summary of Facility Status

The AFRRRI's 1 megawatt Training, Research, Isotope, General Atomics Mark II research reactor, located on the campus of the Walter Reed National Military Medical Center, is operated in support of the Institute's mission of research, experiments, education, reactor operator training, and periodic equipment surveillance testing. During the inspection, the reactor was shut down and secured pending the outcome of this inspection.

1. Followup

a. Inspection Scope (Inspection Procedure 92701)

To ensure that a follow-up inspection is performed for the previously issued URI pertaining to the new reactor console, the inspector reviewed selected aspects of:

- Annual Report for AFRRRI, covering the period from January 1, 2018, through December 31, 2018
- Title 10 of the *Code of Federal Regulations* (10 CFR) 50.59, "Changes, tests and experiments," analysis completed March 2, 2018, regarding the new reactor console
- Reactor Logbook from December 2016 to present
- Administrative Procedure A3, "Facility Modification," dated February 26, 2001

b. Observations and Findings

From the previous AFRRRI routine inspection report, dated July 5, 2018, the inspector issued URI 05000170/2018201-01 regarding the installation of a new reactor console. The licensee had performed a 10 CFR 50.59 analysis, dated March 2, 2018, titled: "Replacement of the 1990 vintage console with 2016 era console," regarding the replacement of the existing Control System Console and Digital Acquisition Console with an updated "like for like feature" control system. The licensee concluded in its analysis that no amendment was needed prior to implementation of the design change. However, the inspector informed the licensee that due to the complexity of the design change, the inspector did not have the expertise nor resources to review this particular design change, and therefore, needed to involve the NRC technical staff for a further review. The inspector explained that this issue will be tracked as URI 05000170/2018201-01 until the NRC completes its review and concludes as to whether or not a license amendment should have been required to make these design changes.

During this URI follow-up inspection, the inspector noted that after the new reactor console was installed, the licensee had performed several reactor startups for low power testing, but failed to complete all of the required items specified under 10 CFR 50.59(c)(2). Specifically, the licensee's 10 CFR 50.59 evaluation of the new reactor console, dated March 2, 2018, did not address 10 CFR 50.59(c)(2)(iv), "Result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously

evaluated in the final safety analysis report (as updated).” Furthermore, low power testing with the new reactor console occurred during the months of March, April and May of 2018, without a completed 10 CFR 50.59 evaluation. Therefore, a violation is being issued for the failure to complete the 10 CFR 50.59 evaluation on the new reactor console prior to performing several reactor startups for low power testing.

c. Conclusion

As a result of this follow-up inspection, the URI 05000170/2018201-01 is now closed but has resulted in the issuance of VIO 05000170/2019202-01.

2. Exit Interview

The inspection scope and results were summarized during an exit meeting on April 10, 2019, with members of licensee management. The inspector explained that upon further review of the URI, it had been determined that a violation occurred. The licensee acknowledged the finding presented and did not identify any documents reviewed by the inspector as proprietary.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

J. Gilstad	Director, AFRRRI (Captain, U.S. Navy)
G. Burke	Deputy Director, AFRRRI (Commander, U.S. Navy)
J. Molgaard	Department Head, Radiation Sciences Department (Major, U.S. Army)
D. Tomlinson	Reactor Facility Director (acting)/Senior Reactor Operator

INSPECTION PROCEDURES USED

IP 92701	Followup
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ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

VIO 05000170/2019202-01	Violation for failure to complete the 10 CFR 50.59 evaluation on the new reactor console prior to performing several reactor startups for low power testing.
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Closed

URI 05000170/2018201-01	Unresolved item pertaining to the need for NRC staff to review the reactor console replacement project.
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Discussed

None

PARTIAL LIST OF ACRONYMS USED

10 CFR	Title 10 of the <i>Code of Federal Regulations</i>
AFRRRI	Armed Forces Radiobiology Research Institute
NRC	U.S. Nuclear Regulatory Commission
URI	Unresolved item
VIO	Violation