



ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE
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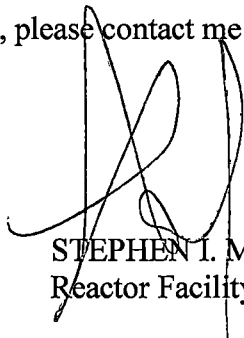
March 23, 2016

U.S. Nuclear Regulatory Commission
Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

Sir or Madam:

Enclosed is the 2015 Annual Operating Report required by the Technical Specifications for the Armed Forces Radiobiology Research Institute reactor (license R-84, docket 50-170).

Should you need any further information, please contact me at (301) 295-9245.


STEPHEN I. MILLER
Reactor Facility Director

A020
NRR

Armed Forces Radiobiology Research Institute
AFRRI TRIGA Reactor Facility

01 January 2015 - 31 December 2015

To satisfy the requirements of
U.S. Nuclear Regulatory Commission License No. R-84 (Docket No. 50-170),
Technical Specification 6.6.b.

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Submission of 2015 Annual Report

I declare under penalty of perjury that this report is true and correct.



STEPHEN I. MILLER
Reactor Facility Director

23 MARCH 16
Date

2014 ANNUAL REPORT

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INTRODUCTION

The Armed Forces Radiobiology Research Institute (AFRRI) reactor facility was not available for irradiation services for the entire year due to the pending repair of the control console and maintenance that could not be performed due to the console.

There were no reactor modifications during the year and no unscheduled shutdowns during 2015.

The 2015 annual reactor audit required by the reactor Technical Specifications is scheduled for early 2016 by Mr. Mark Gee, LINAC/Cobalt Division Chief at AFRRI.

A comprehensive NRC inspection of procedures, experiments, health physics, design changes, transportation, committees, audits, and reviews was rescheduled by Mr. Johnny Eads of the NRC for early 2016.

Reactor and Radiation Facilities Safety Subcommittee (RRFSS) membership changes during the year are discussed in the General Information section. There was one reactor staff departure and no additions during the year.

The remainder of this report is written in the format designated in the Technical Specifications for the AFRRI TRIGA Reactor Facility. Items not specifically required are presented in the General Information section. The following sections correspond to the required items listed in Section 6.6.b. of the Technical Specifications.

GENERAL INFORMATION

All personnel held the listed positions throughout the year unless otherwise specified.

Key AFRRRI personnel (as of 31 December 2014) are as follows:

1. AFRRRI Director – L. Andrew Huff, Col, USAF
Radiation Sciences Department (RSD) Head - Stephen Miller (SRO)
Radiation Safety Officer – Marie Parry, CDR, USN
2. Reactor Facility Director and Facility Radiation Manager - Stephen Miller (SRO)
3. Reactor operations personnel:
Reactor Operations Supervisor – Jason Jacot (SRO)
SRO Training Coordinator – Jason Jacot (SRO)
Maintenance Specialist - Walter Tomlinson (SRO)
Records Administration Specialist – Jason Jacot (SRO)
4. Other Senior Reactor Operators:
NA
5. Operator candidates:
Robert McMahon, MAJ, USA
David Manzanares, SSG, USA
6. Additions to staff during 2015:
None
7. Departures during 2015:
Ian Gifford (SRO)
8. The following are changes to the RRFSS membership during 2015.
CDR Lee, Hoey was appointed the RRFSS Chairman and Director's Representative, CDR Marie Parry was appointed the Radiation Safety Officer, and MSG Jason Jacot became the RRFSS recorder.

In accordance with the requirements set forth in Section 6.2.1.1. of the Technical Specifications for the AFRI TRIGA Reactor Facility, the RRFSS consisted of the following members as of 31 December 2015.

Regular members are:

Radiation Safety Officer – Marie Parry, CDR, USN

Reactor Facility Director and Facility Radiation Manager – Stephen Miller

Reactor Operations Specialist – Harry Spence

Reactor Operations Specialist – Vincent Adams

Health Physics Specialist - Joe Pawlovich

Chairman and Director's Representative –L. Dan Hoey, CDR, USN

Special nonvoting member - David Lake, Montgomery County Government (Department of Environmental Protection)

Recorder – Jason Jacot, MSG, USA

Two meetings were held in 2015:

11 June 2015

22 December 2015

SECTION I

Changes in the Facility Design, Performance Characteristics, Administrative Procedures, Operational Procedures, Results of Surveillance Tests and Inspections

A summary of changes to the facility design, performance characteristics, administrative procedures, and operational procedures as well as the results of surveillance testing are provided in this section.

A. DESIGN CHANGES

There were no design changes during 2015

B. PERFORMANCE CHARACTERISTICS

There were no changes to the performance characteristics of the core during 2015.

C. ADMINISTRATIVE PROCEDURES

There were no changes to the Administrative Procedures during 2015.

D. OPERATIONAL PROCEDURES

There was one change to the Operational Procedures during 2015. The RRFSS was notified of the changes during the December 2015 meeting.

Reactor Operational Procedure 11 had the minor changes to the procedure as changing the low alarm set points of the Continuous Air Monitors (CAM) from 25,000 CPM to 20,000 CPM based on HPD documentation. The change is effective 25 November 2015. There were no comments from the committee.

E. RESULTS OF SURVEILLANCE TESTS AND INSPECTIONS

Surveillance tests required by Technical Specifications were not accomplished as normally scheduled during 2015, due to inoperable condition of console for the duration of 2015. The console was repaired in November 2015 and normal operations will not resume until all required maintenance and calibrations have been performed.

The 2015 annual reactor audit required by the reactor Technical Specifications is scheduled for early 2016 by Mr. Mark Gee, LINAC/Cobalt Division Chief at AFRRI.

A comprehensive NRC inspection of procedures, experiments, health physics, design changes, transportation, committees, audits, and reviews was rescheduled by Mr. Johnny Eads of the NRC for early 2016.

SECTION II

Energy Generated by the Reactor Core and the Number of Pulses \$2.00 or Larger

Month	Kilowatt Hours
JAN	0.0
FEB	0.0
MAR	0.0
APR	0.0
MAY	0.0
JUN	0.0
JUL	0.0
AUG	0.0
SEP	0.0
OCT	0.0
NOV	0.0
DEC	<u>0.0</u>
TOTAL	0.0

Total energy generated in 2015: 0 kWh

Total energy on fuel elements: 1,153,063.6 kWh

Total energy on FFCRs*: 420,265.9 kWh

Total pulses this year \geq \$2.00: 0

Total pulses on fuel elements \geq \$2.00: 4,219

Total pulses on FFCRs* \geq \$2.00: 107

Total pulses this year: 0

Total pulses on fuel elements: 12,171

Total pulses on FFCRs*: 2,406

*Fuel-followed control rods

SECTION III

Unscheduled Shutdowns

There were no unscheduled shutdowns during 2015.

SECTION IV

Safety-Related Corrective Maintenance

There was no safety related corrective maintenance for 2015.

SECTION V

Facility and Procedure Changes as Described in the Final Safety Analysis Report (FSAR), New Experiments or Tests Performed During the Year

A. FACILITY CHANGES AS DESCRIBED IN THE FSAR

There was a deletion of the mention of compressed air control of the automatic closing damper. They are no longer controlled with compressed air and are now controlled by electronic automation. The changes were reviewed by the RRFSS members.

B. PROCEDURE CHANGES AS DESCRIBED IN THE FSAR

There were no changes to procedures as described in the FSAR during the year.

C. NEW EXPERIMENTS OR TESTS

No new experiments or tests were performed during the reporting period that were not encompassed by the FSAR.

SECTION VI

Summary of Radioactive Effluent Released

A. Liquid Waste: The reactor produced no liquid waste during 2015.

B. Gaseous Waste: There were no particulate discharges in 2015.

The total activity of Argon-41 discharged in 2014 was 0.47 curies. The estimated effluent concentration from the release of Argon-41 represents less than 1% of the constraint limit for unrestricted areas (10 CFR 20.1101(d) and Table 2, Appendix B, 10 CFR 20).

Quarterly:	Jan - Mar 2015	0.000 Ci
	Apr - Jun 2015	0.000 Ci
	Jul - Sep 2015	0.000 Ci
	Oct - Dec 2015	0.000 Ci

C. Solid Waste: All solid radioactive waste material was transferred to the AFRRI byproduct license; none was disposed of under the R-84 reactor license.

SECTION VII

Environmental Radiological Surveys

All environmental sampling of soil and vegetation yielded radionuclide levels within the background range. The radionuclides that were detected were those expected from natural background and from long-term fallout from nuclear weapons testing.

The calculated annual dose, due to Argon-41 release to the environment for 2015, was 0.000 mrem at the location of maximum public exposure. The maximum exposure is calculated at a location 91 meters from the release point as described in the FSAR. Exposure to the general population at the boundary of the Naval Support Activity Bethesda is significantly less due to the diffusion of Argon-41 in the atmosphere. The constraint limit for exposure to the public established under 10 CFR 20.1101(d) is 10 mrem per year. The exposure dose was calculated using COMPLY code, level 2, which is the most conservative level of COMPLY. Emissions due to reactor operations were 0.000 mrem, or less than 1% of the 10 mrem constraint limit, for the entire year.

The reactor in-plant surveys, specified in Health Physics Procedure (HPP) 3-2, all resulted in readings that were less than the action levels specified in HPP 0-2.

SECTION VIII

Exposures Greater than 25% of 10 CFR 20 Limits

There were no doses to reactor staff personnel or reactor visitors greater than 25% of 10 CFR 20 occupational and public radiation dose limits.