

April 2, 2004

Colonel David G. Jarrett, Director  
Armed Forces Radiobiology  
Research Institute  
National Naval Medical Center  
8901 Wisconsin Avenue  
Bethesda, MD 20889-5603

SUBJECT: NRC INSPECTION REPORT NO. 50-170/2004-201

Dear Colonel Jarrett:

This letter refers to the inspection conducted on March 15-18, 2004, at your Armed Forces Radiobiology Research Institute TRIGA Reactor facility. The inspection included a review of activities authorized for your facility. The enclosed report presents the results of that inspection.

Areas examined during the inspection are identified in the report. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations of activities in progress. Based on the results of this inspection, no safety concerns or noncompliance of NRC requirements was identified. No response to this letter is required.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at (the Public Electronic Reading Room) <http://www.nrc.gov/reading-rm/adams.html>.

Should you have any questions concerning this inspection, please contact Craig Bassett at 404-562-4712.

Sincerely,

**/RA by Marvin M. Mendonca Acting Chief for/**

Patrick M. Madden, Chief  
Research and Test Reactors Section  
New, Research and Test Reactors Program  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

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

Enclosure: NRC Inspection Report No. 50-170/2004-201

cc w/enclosure: Please see next page

Armed Forces Radiobiology Research

Docket No. 50-170

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

Docket No: 50-170

License No: R-84

Report No: 50-170/2004-201

Licensee: Armed Forces Radiobiology Research Institute

Facility: AFRRRI Reactor Facility

Location: Bethesda, Maryland

Dates: March 15-18, 2004

Inspector: Craig Bassett

Approved by: Patrick M. Madden, Section Chief  
Research and Test Reactors Section  
New, Research and Test Reactors Program  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

## EXECUTIVE SUMMARY

Armed Forces Radiobiology Research Institute  
Report No.: 50-170/2004-201

The primary focus of this routine, announced inspection included onsite review of selected aspects of the licensee's Class II research reactor safety programs including: organizational structure and staffing, design control and review and audit functions, procedures, radiation protection, environmental protection, transportation of radioactive materials, material control and accountability, and security since the last NRC inspection of these areas. The licensee's programs were acceptably directed toward the protection of public health and safety, and in compliance with NRC requirements.

### Organizational Structure and Staffing

- The organizational structure and functions were consistent with Technical Specification Section 6.1 requirements.

### Design Control and Review and Audit Functions

- The design control program satisfied NRC requirements specified in 10 CFR 50.59.
- The review and audit program satisfied the requirements stated in Technical Specification Sections 6.2.4 and 6.2.5 and the Reactor and Radiation Facility Safety Committee was acceptably fulfilling its responsibilities.

### Radiation Protection

- Surveys were being completed and documented acceptably to permit evaluation of the radiation hazards present.
- Postings met the regulatory requirements specified in 10 CFR Parts 19 and 20.
- Personnel dosimetry was being worn as required and doses were well within the NRC's regulatory limits.
- Radiation monitoring equipment was being maintained and calibrated as required.
- The Radiation Protection Program implemented by the licensee satisfied regulatory requirements.

### Procedures

- Procedural review, revision, control, and implementation satisfied Technical Specification requirements.

### Environmental Protection

- The environmental protection program satisfied NRC requirements.

Transportation of Radioactive Materials

- Radioactive material was transferred to the licensee's Byproduct Material License and disposed of under that license.

Material Control and Accountability

- Special Nuclear Materials were acceptably controlled and inventoried.

Security

- The NRC-approved security program was acceptably implemented.

## REPORT DETAILS

### **Summary of Plant Status**

The Armed Forces Radiobiology Research Institute's (AFRRI's) 1.1 megawatt research and test reactor continued to be operated in support of service work, tours, training, and maintenance. During the inspection, the reactor was operated as a demonstration for a group of Japanese military personnel.

#### **1. Organizational Structure and Staffing**

##### a. Inspection Scope (Inspection Procedure [IP] 69001)

The inspector reviewed the following regarding the licensee's organizational structure and functions to ensure that the requirements of Section 6.1 of the Technical Specification (TS), Amendment No. 24, dated September 18, 2001, were being met:

- AFRRI TRIGA Reactor Facility organization and staffing
- staff qualifications
- management responsibilities
- selected portions of the operations log for the past two years
- AFRRI TRIGA Reactor Facility Annual Reports for 2000 and 2001

##### b. Observations and Findings

The organizational structure and designated responsibilities had not changed since the last inspection. Although routine rotation of military personnel occurred, replacement personnel with the acceptable qualifications or training were assigned to fill the vacancies. The organizational structure and staffing at the facility were as required by TS. Qualifications of the staff met TS requirements. Review of records verified that management responsibilities were administered as required by TS and applicable procedures.

##### c. Conclusions

The organizational structure and functions were consistent with TS Section 6.1 requirements.

#### **2. Design Change and Review and Audit Functions**

##### a. Inspection Scope (IP 69001)

In order to verify that design changes were reviewed in accordance with 10 CFR 50.59 and that the licensee had established and conducted reviews and audits as required in TS Sections 6.2.4 and 6.2.5, the inspector reviewed selected aspects of:

- facility design changes and reviews for 2003
- AFRRI Reactor Facility Administrative Procedure A3, "Facility Modification," Revision (Rev.) dated February 26, 2001

- AFRRRI Reactor Facility Administrative Procedure A3, "Facility Modification Worksheet 1 - No. 10 CFR 50.59 Analysis" Rev. dated February 26, 2001
- AFRRRI Reactor Facility Administrative Procedure A3, "Facility Modification Worksheet 2 - No. 10 CFR 50.59 Analysis Required," Rev. dated February 26, 2001
- Reactor and Radiation Facility Safety Committee meeting minutes from 2002 to the present
- safety review and audit records for 2001, 2002, and 2003
- responses to the safety reviews and audits

b. Observations and Findings

(1) Design Change

Records and observations showed that the changes made during 2003 at the facility were acceptably reviewed in accordance with 10 CFR 50.59 and applicable administrative controls. The changes completed by the licensee were then reviewed by the Reactor and Radiation Facility Safety Committee (RRFSC), determined to be acceptable, and approved as required. None of the changes constituted a safety question or required a change to the TS.

(2) Review and Audit Functions

The RRFSC membership satisfied TS requirements and the Committee's procedural rules. The RRFSC had two meetings per year as required and a quorum was present. Review of the committee meeting minutes indicated that the RRFSC provided guidance and direction for reactor operations, and ensured suitable use and oversight of the reactor.

Since the last inspection the required audits of reactor facility activities and reviews of programs, procedures, equipment changes, and proposed tests or experiments, had been completed and documented. Additionally, the annual reviews of the emergency and security plans had been conducted by designated individuals and acceptably documented. The reviews were acceptable and were reviewed by the RRFSC as required.

c. Conclusions

The design control program satisfied NRC requirements specified in 10 CFR 50.59. The review and audit program satisfied TS Sections 6.2.4 and 6.2.5 requirements and the RRFSC was acceptably fulfilling its responsibilities.

**3. Procedures**

a. Inspection Scope ( IP 69001)

The inspector reviewed selected aspects of the following to verify that the licensee was complying with the requirements of TS Section 6.3:



- selected administrative and operational procedures
- records for procedure changes and temporary changes
- observation of procedure implementation
- related logs and records documenting procedure implementation
- AFRRRI Reactor Facility Operational Procedure 0, "Procedure Changes - Writing and Modifying Procedures," Rev. dated February 11, 1999

b. Observations and Findings

Operations procedures were available for those tasks and items required by the TS. Written changes were approved by the Reactor Facility Director (RFD) and reviewed by the RRFSC as required. Temporary changes that did not change the original intent of the procedure were made by the Reactor Operations Supervisor, documented, and subsequently reviewed and approved by the RFD as required by the TS.

Review of procedure changes by staff members was documented on a standard AFRRRI form for each procedure. Training of personnel on procedures and changes was acceptable. Through records review and observation, the inspector verified that personnel conducted TS activities in accordance with applicable procedures.

c. Conclusions

Procedural review, revision, control, and implementation satisfied TS requirements.

#### 4. **Radiation Protection**

a. Inspection Scope (IP 69001)

The inspector reviewed selected aspects of the following to verify compliance with 10 CFR Parts 19 and 20 and TS Sections 3.5.1, 3.8, and 4.5 requirements:

- radiation and contamination survey records documented on the forms in accordance with the guidance contained in AFRRRI Safety and Health Department Health Physics Procedures
- audits of the Radiation Protection Program
- calibration and periodic check records for radiation monitoring instruments documented on the applicable forms
- radiological signs and postings in the controlled areas of the facility
- AFRRRI personnel dosimetry records for 2002 and 2003
- As Low As Reasonably Achievable (ALARA) Program
- Reactor Facility and other AFRRRI personnel radiation protection training records
- Documentation of various types of training classes given for general employees, Radiation Workers (Rad Worker), Principal Investigators, and of specialized classes for Spanish-speaking personnel and for contractor personnel including Security
- AFRRRI Instruction 6055.8E, "Radiation Protection Program," Rev. dated March 12, 2001

- AFRRRI Safety and Health Department (SHD) Health Physics Procedure 0-1.E, "Radiological Safety Training," Rev. dated February 1, 2000
- AFRRRI SHD Health Physics Procedure 0-2.C, "Health Physics Action Levels," Rev. dated April 10, 2000
- AFRRRI SHD Health Physics Procedure 1-2.C, "Personnel Monitoring Program," Rev. dated February 1, 2000
- AFRRRI SHD Health Physics Procedure 3-1.C, "Reactor Irradiation Facilities," Rev. dated February 1, 2000
- AFRRRI SHD Health Physics Procedure 3-2.B, "Reactor Facility Health Physics," Rev. dated April 10, 2000
- AFRRRI SHD Health Physics Procedure 4-6.C, "Facility In-Plant Monitoring," Rev. dated January 14, 2000
- AFRRRI SHD Health Physics Procedure 7-1.C, "Survey Instruments," Rev. dated March 14, 2000
- AFRRRI SHD Health Physics Procedure 7-2.C, "Radiation Monitors," Rev. dated January 14, 2000
- AFRRRI SHD Health Physics Procedure 7-3.D, "Airborne Radioactivity Samplers and Monitors," Rev. dated January 14, 2000
- AFRRRI SHD Health Physics Procedure 8-1.A, "Radiological Survey Techniques," Rev. dated March 14, 2000
- AFRRRI Reactor Facility Operational Procedure 4, "Reactor ALARA Program," Rev. dated October 4, 1994
- AFRRRI Reactor Facility Operational Procedure 11, "Air Particulate Monitor (CAM) Procedure," Rev. dated May 1, 1998
- AFRRRI Form 130(R), "Reactor Exposure Room Opening Survey," dated June 17, 1994

The inspector also toured the facility, conducted a radiation survey in selected areas, and observed the use of dosimetry and radiation monitoring equipment. Licensee personnel were interviewed and radiological signs and postings were observed as well.

b. Observations and Findings

(1) Surveys

The inspector reviewed weekly radiation and contamination surveys of licensee controlled areas conducted by SHD personnel. The inspector also reviewed biweekly general area contamination surveys of the AFRRRI building from 2003 to the date of the inspection. These latter surveys had also been completed by SHD personnel as stipulated by AFRRRI SHD Health Physics Procedure 4-6.C. The results were documented on the applicable forms and were evaluated as required. No readings or results were noted that exceeded set action levels.

During the inspection, the inspector accompanied a Health Physics (HP) Technician during a weekly survey. The inspector also conducted a radiation survey of the Reactor Room and the Reactor Prep Area and compared the readings detected with those found by the HP Technician. The results were comparable and no anomalies were noted. The inspector noted that the weekly

survey was conducted in accordance with Health Physics procedures and records were acceptably maintained.

(2) Postings and Notices

The inspector reviewed the postings at the entrances to AFRRRI Reactor Facility controlled areas. The postings were acceptable and indicated the radiation and contamination hazards present. Other postings also showed the industrial hygiene hazards present in the areas. The facility's radioactive material storage areas were noted to be acceptably posted. No unmarked radioactive material was detected in the facility.

Copies of current notices to workers required by 10 CFR Part 19 were posted on various bulletin boards in the facility, including copies of NRC Form 3, "Notice to Employees," Revision September 1999, in accordance with 10 CFR 19.11. Caution signs, postings and controls for entrance into radiation areas were as required in 10 CFR 20, Subpart J.

(3) Dosimetry

The licensee used a National Voluntary Laboratory Accreditation Program accredited organization, the Naval Dosimetry Center, to process the whole body and extremity thermoluminescent dosimeters (TLDs) supplied to AFRRRI personnel. Through direct observation, the inspector determined that dosimetry was acceptably used by facility personnel and exit frisking practices were in accordance with radiation protection requirements.

An examination of the records for the past two years, through December of 2003, showed that all whole body exposures were well within NRC limits and within licensee action levels. Extremity monitoring, accomplished through the use of finger ring TLDs, also generally showed low doses to the hands of staff members. The highest annual whole body exposure received by a single individual for the past two years was less than 200 millirem. The highest annual extremity exposure for 2002 was less than 50 millirem. The extremity exposures for 2003 were not available due to a processing problem. The licensee indicated that the extremity exposure data would be available when they received the results from the Naval Dosimetry Center. In the interim, the issue was identified as an Unresolved Item<sup>1</sup> by the inspector and will be reviewed during a subsequent NRC inspection (URI 50-170/2004-201-01)

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<sup>1</sup>An Unresolved Item is a matter about which more information is required to determine whether the issue in question is an acceptable item, a deviation, a nonconformance, or a violation.

(4) Radiation Monitoring Equipment

The calibration of portable survey meters and friskers was typically completed by Calibration Laboratory personnel. The calibration of fixed Radiation Area Monitors and Constant Air Monitors was typically completed by SHD personnel. The calibration records of selected portable survey meters, friskers, fixed radiation detectors, and air monitoring equipment in use at the facility were reviewed. Calibration frequency met the requirements established in the applicable procedures and TS and records were being maintained as required.

The inspector toured the AFRRRI Calibration Range and observed a demonstration of the calibration of pocket dosimeters (PDs). The PDs were calibrated in accordance with the applicable procedure as required. Controls were established and implemented to maintain doses to personnel ALARA.

(5) Radiation Protection Program and ALARA Policy

The licensee's Radiation Protection Program was established in AFRRRI Instruction 6055.8E dated March 12, 2001. The program was further outlined in and implemented through various Reactor Facility and Safety and Health Department procedures. The program required that all personnel who had unescorted access to work in a radiation area or with radioactive material receive training in radiation protection, policies, procedures, requirements, and facilities prior to entry. The licensee reviewed the radiation protection program at least annually in accordance with 10 CFR 20.1101(c).

The ALARA Policy was also outlined and established in AFRRRI Instruction 6055.8E. The ALARA program provided guidance for keeping doses as low as reasonably achievable and was consistent with the guidance in 10 CFR Part 20.

The licensee did not require a respiratory protection program or planned special exposure program.

(6) Radiation Protection Training

The inspector reviewed documentation of classes given for General Employee Radiation Training, Radiation Supervised User (Rad Worker) Training, Annual Refresher Training, and specialized training for Spanish-speaking personnel and for Northrop Grumman personnel. The personnel training program satisfied requirements in 10 CFR 19.12. Handout material provided by the SHD training coordinator appeared to be very useful in helping people understand the various concepts of radiation protection. The content and periodicity of training were acceptable.

(7) Facility Tours

The inspector toured the Control Room, Reactor Room, Reactor "Prep" Area, and selected support laboratories and offices. Control of radioactive material and

control of access to radiation and high radiation areas were acceptable. As noted earlier, the postings and signs for these areas were acceptable.

c. Conclusions

The inspector determined that the Radiation Protection Program being implemented by the licensee satisfied regulatory requirements because: 1) surveys were being completed and documented acceptably; 2) postings met regulatory requirements; 3) personnel dosimetry was being worn as required and doses were well within the NRC's regulatory limits; 4) radiation monitoring equipment was being maintained and calibrated as required; and, 5) acceptable training was being provided.

**5. Environmental Protection**

a. Inspection Scope (IP 69001)

To determine that the licensee was complying with the requirement of the regulations and TS Section 3.5, the inspector reviewed selected aspects of:

- airborne release records documented in the Quarterly Gaseous Radioeffluents Report submitted by the SHD to the RRFSC for the period from 2002 through 2003
- liquid release records documented in the Liquid Radioeffluent Summary Report for the period from 2002 through 2003
- AFRRRI TRIGA Reactor Facility Annual Reports for 2001 and 2002 (the 2003 report was not yet available)
- AFRRRI SHD Health Physics Procedure 2-1.B, "Environmental TLD Program," Rev. dated February 1, 2000
- AFRRRI SHD Health Physics Procedure 2-2.B, "Environmental Sampling," Rev. dated February 1, 2000
- AFRRRI SHD Health Physics Procedure 2-5.D, "Environmental Radioactivity Releases," Rev. dated February 1, 2000
- AFRRRI Reactor Facility Operational Procedure 10, "Stack Gas Monitor Procedure," Rev. dated May 17, 1996

b. Observations and Findings

The inspector reviewed the records documenting liquid and airborne releases to the environment for the past two years. The inspector determined that gaseous releases continued to be calculated as required by procedure and were acceptably documented. The releases were determined to be within the annual dose constraints of 10 CFR 20.1101(d), 10 CFR Part 20, Appendix B concentrations, and TS limits. Calculations using the COMPLY Code indicated an annual dose to members of the public of 0.039 millirem for 2003. Although there were no liquid releases directly from the Reactor Facility, the inspector verified that liquid releases from waste tanks in the AFRRRI complex were approved as required after analyses indicated that the releases would meet regulatory requirements for discharge into the sanitary sewer.

On-site and off-site gamma radiation monitoring was completed using the reactor facility stack effluent monitor and various environmental TLDs in accordance with the applicable procedures. The data indicated that there were no measurable doses above any regulatory limits. These results and those above were acceptably reported in the Reactor Operations Annual Report for 2002 and 2003. Through observation of the facility, the inspector found no new potential release paths.

The inspector reviewed the calibration records of the area and stack monitoring systems. These systems had been calibrated annually according to procedure.

c. Conclusions

The environmental protection program satisfied NRC requirements.

**6. Transportation**

a. Inspection Scope (IP 86740)

The inspector reviewed the following to verify compliance with procedural requirements for transferring licensed material:

- selected records of radioactive material transfers from the reactor license to the licensee's Byproduct Material License, No. 19-08330-02
- AFRRRI Form 146a(R), "Radioactive Item Disposition Record," dated April 21, 1995
- AFRRRI SHD APP 6-3.C, "Radioactive Waste," Rev. dated February 1, 2000
- AFRRRI SHD APP 8-7.A, "Radioactive Materials Transport," Rev. dated January 14, 2000, and the associated completed forms, AFRRRI Form, "Radioactive Material Transfer Record"

b. Observations and Findings

Through records review and discussions with licensee personnel, the inspector determined that, as a standard practice, the licensee transferred radioactive material and solid waste produced by reactor operations to the licensee's Byproduct Material License for possession, shipment, and/or disposal. Transfers were recorded on the applicable forms noted above and transfer documentation was kept on file as required.

c. Conclusions

Radioactive material was transferred to the licensee's Byproduct Material License and disposed of under that license.

**7. Safeguards - Material Control and Accountability**

a. Inspection Scope (IP 85102)

To verify compliance with 10 CFR Part 70, the inspector reviewed:

- status and control of Special Nuclear Material (SNM) storage areas
- annual fuel inventory results documented on Fuel Inventory sheets as specified in AFRRRI Reactor Facility Administrative Procedure A4
- Nuclear Material Transaction Reports for the time period from October 2001 through October 2003
- AFRRRI Reactor Facility Administrative Procedure A4, "Special Nuclear Material Accountability," Rev. dated June 7, 1994

b. Observations and Findings

Records indicated that the licensee accurately accounted for all special nuclear material (SNM) maintained under the R-84 license including irradiated fuel elements, fuel follower control rods, foils, and fission chambers. The licensee had not received nor made any SNM shipments during the past two years. Material Balance Reports (DOE/NRC Form 742) or their equivalent had been completed and submitted by the licensee to the appropriate regulatory agencies in a timely manner and as required by 10 CFR 74.13(1). Physical inventories were conducted annually as required by 10 CFR 70.51(d).

The inspector toured the facility and verified that the licensee was using and storing SNM in the designated areas. The Inventory Officer, the person who prepared and kept track of the facility SNM, was documented to have been trained in fuel records, accountability procedures, and inventory procedures by the RFD. Through tours and records review, the inspector verified that the total amount of SNM in use or in storage at the facility was within the possession limits specified in the license.

The inspector also observed and verified the serial number of a randomly chosen irradiated fuel element removed from the core for that purpose. The serial number was compared with licensee core loading records and was found to be the same. The verification demonstrated that the fuel and other SNM maintained by the licensee were in the locations specified and that records documenting the storage and transfers were accurate.

c. Conclusions

Special Nuclear Materials were acceptably controlled and inventoried.

**8. Security**

a. Inspection Scope (IPs 81401, 81402, 81403, 81431, and 81810)

To verify compliance with the licensee's NRC-approved Physical Security Plan (PSP) and that changes, if any, to the plan had not reduced its overall effectiveness, the inspector reviewed:

- security systems, equipment, and instruments
- records, and reports concerning security
- access, entry, and key control
- Key Inventory Checkout Sheets for 2002 and 2003

- TRIGA Tracker system documentation of completed tests and surveillances
- AFRRRI Reactor Facility Administrative Procedure A2, "Personnel Passage Through the Prep Area," Rev. dated May 25, 1995
- AFRRRI Reactor Facility Operational Procedure 1, TAB A, "Reactor Exposure Room Entry," Rev. dated June 29, 2000
- AFRRRI Reactor Facility Operational Procedure 3, "Maintenance Procedure," Rev. dated December 1, 1994, detailing the TRIGA Tracker system
- AFRRRI Reactor Facility Operational Procedure 5, "Physical Security," Rev. dated May 15, 1991

b. Observations and Findings

The licensee's PSP entitled, "Physical Security Plan for the AFRRRI TRIGA Reactor Facility," dated June 27, 2001, was the same as the latest revision approved by the NRC. Military and civilian personnel provided security at AFRRRI as required by the plan. National Naval Medical Center Security Division personnel, the Civil Guard Force, provided back-up security support for the regular civilian guard force. Reactor Facility physical protection systems (barriers and alarms), equipment, and instrumentation were as required by the PSP but were experiencing problems. Compensatory measures had been implemented in the interim. However, as a result of the security system problems, the latest system tests had not been performed and documented as required. The licensee indicated that monies had been appropriated for upgrading the entire AFRRRI security system. In the interim, the issue of conducting periodic tests of the security system was identified as a URI by the inspector and will be reviewed during a subsequent inspection (URI 50-170/2004-201-02).

Access controls were implemented as required by the PSP and licensee procedures. Periodic security and emergency training was provided to both the AFRRRI staff and security personnel. Facility access, entry, and keys were acceptably controlled and keys were inventoried periodically as required.

Various AFRRRI procedures were consistent with, and acceptably implemented, the PSP. The inspector verified that the PSP was being reviewed annually as required. It was also noted that the licensee was acceptably controlling and protecting the PSP and other safeguards information as required by the regulations.

Through records review and interviews with licensee personnel, the inspector verified that there had been no safeguards events at the facility since the last inspection. Also, although no new fuel had been received by the licensee recently, the PSP contained provisions to establish and maintain protection of such fuel and other SNM.

c. Conclusions

The licensee's physical protection program was found to conform to NRC requirements and the licensee's implementing procedures.



## 9. Follow-up on Previously Identified Items

### a. Inspection Scope (IP 69001)

The inspector reviewed the licensee's actions taken following identification of an Inspector Follow-up Item (IFI) noted in NRC Inspection Report No. 50-170/2003-201:

- 50-170/2003-201-01 - IFI - Follow-up on completion of the facility safety audit for 2002, including review of the Emergency Plan and review of the Security Plan, scheduled for the third week of February 2003.
- 50-170/1998-201-01 - IFI - Follow-up to ensure that the four positions required for reactor operation are noted in the console log as required.
- AFRRR Reactor Facility Console Log No. 126
- safety review and audit records for 2001, 2002, and 2003

### b. Observations and Findings

#### (1) Facility Safety Audit

During an inspection the second week of 2003, the inspector noted that the facility safety audit for 2002 was originally scheduled to be completed in January 2003. Because the person selected to conduct the audit had been deployed to the Middle East, a second person had to be selected. That person was not available to conduct an audit until the third week in February 2003. Because of the delay, this issue was identified as an Inspector Follow-up Item.

As part on the current inspection, the inspector reviewed the actions taken by the licensee to complete the audit as required. Through review of the meeting minutes of the RRFSC, the inspector noted that the audit in question had been completed February 21, 2003, by a contractor. A review of the audit indicated that it was acceptable. This item is considered closed.

#### (2) Completion of Console Log Entries

During a previous inspection, an inspector noted that the TS required four individuals to be present in the facility for reactor operation. The inspector noted that the names of the duty operator and Senior Reactor Operator (SRO)-on-call were entered in the console log for each reactor startup but the HP Technician and an emergency helper on call were not listed. This issue was identified as an Inspector Follow-up Item.

As part on the current inspection, the inspector reviewed the actions taken by the licensee to correct the entries in the console log. Because the TS states that the SRO-on-call can also function as the duty operator, the names of the duty operator listed in the console log and the SRO-on-call were typically the same. Spaces were also provided for listing the names of the HP Technician and an emergency helper. The inspector reviewed the current console log and verified that the names were being entered as required. This item is considered closed.

c. Conclusions

This licensee had completed an audit of facility safety for 2002 as required and was completing the console log as required.

**9. Exit Interview**

The inspector presented the inspection results to members of licensee management at the conclusion of the inspection on March 18, 2004. The licensee acknowledged the findings presented and did not identify as proprietary any of the material provided to or reviewed by the inspector during the inspection except for the Physical Security Plan.

## **PARTIAL LIST OF PERSONS CONTACTED**

### Licensee

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D. Simpson, LCDR, USN, Head, Safety and Health Department  
B. Wampler, Health Physicist, SHD  
D. White, Security Guard, TW & Company, Inc. (Security Contractor for AFRRRI)  
T. Wilson, Captain, Security, TW & Company, Inc. (Security Contractor for AFRRRI)

## **INSPECTION PROCEDURES USED**

IP 69001	Class II Research and Test Reactors
IP 81401	Plans, Procedures, and Reviews
IP 81402	Report of Safeguards Events
IP 81403	Receipt of New Fuel at Reactor Facilities
IP 81431	Fixed Site Protection of Special Nuclear Material of Low Strategic Significance
IP 85102	Material Control and Accounting - Reactors
IP 86740	Inspection of Transportation Activities
IP 81810	Protection of Safeguards Information

## **ITEMS OPENED, CLOSED, AND DISCUSSED**

### Opened

50-170/2004-201-01	URI	Review the extremity exposure results for 2003 that were not available during the NRC inspection in March 2004 due to a processing problem.
50-170/2004-201-02	URI	Review the resolution of the Reactor Facility security system problems and completion of the latest periodic system tests.

Closed

50-170/2003-201-01	IFI	Follow-up on completion of the facility safety audit for 2002, including review of the Emergency Plan and review of the Security Plan, scheduled for the third week of February 2003.
50-170/1998-201-01	IFI	Follow-up to ensure that the four positions required for reactor operation are noted in the console log as required.

**LIST OF ACRONYMS USED**

AFRRI	Armed Forces Radiobiology Research Institute
ALARA	As Low As Reasonably Achievable
CFR	Code of Federal Regulations
ERT	Emergency Response Team
HP	Health Physics
IFI	Inspector Follow up Item
IP	Inspection Procedure
LCO	Limiting Conditions for Operation
NNMC	National Naval Medical Center
NRC	Nuclear Regulatory Commission
PSP	Physical Security Plan
Rev.	Revision/Revised
RFD	Reactor Facility Director
ROS	Reactor Operations Supervisor
RRFSC	Reactor and Radiation Facility Safety Committee
RUR	Reactor Utilization Request
SHD	Safety and Health Department
SNM	Special Nuclear Material
TLD	Thermoluminescent dosimeter
TS	Technical Specifications