

March 7, 2013

Dr. Kelly Jordan  
Director of the University of Florida Training Reactor  
Nuclear and Radiological Engineering Department  
P. O. Box 11830  
University of Florida  
Gainesville, FL 32611

SUBJECT: UNIVERSITY OF FLORIDA – NRC ROUTINE INSPECTION REPORT NO.  
50-083/2013-201

Dear Dr. Jordan:

From February 11 to 14, 2013, the U.S. Nuclear Regulatory Commission (NRC or the Commission) completed an inspection at your University of Florida Training Reactor facility. The enclosed report documents the inspection results, which were discussed with Kelly Jordan, Director of the University of Florida Training Reactor; Brian Shea, Reactor Manager; and other members of your staff on February 14, 2013.

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 inspector reviewed selected procedures and records, observed activities, 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 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).

Should you have any questions concerning this inspection, please contact Taylor Lichatz at (301) 415-7128 or electronic mail at [Taylor.Lichatz@nrc.gov](mailto:Taylor.Lichatz@nrc.gov).

Sincerely,  
/RA/

Gregory T. Bowman  
Research and Test Reactors Oversight Branch  
Division of Policy and Rulemaking  
Office of Nuclear Reactor Regulation

Docket No. 50-083  
License No. R-56

Enclosure: Inspection Report No. 50-083/2013-201

cc w/encl: See next page

University of Florida

Docket No. 50-083

Administrator  
Department of Environmental Regulation  
Power Plant of Siting Section  
State of Florida  
2600 Blair Stone Road  
Tallahassee, FL 32301

State Planning and Development Clearinghouse  
Office of Planning and Budgeting  
Executive Office of the Governor  
The Capitol Building  
Tallahassee, FL 32301

Chief, Bureau of Radiation Control  
Department of Health  
4052 Bald Cypress Way  
Tallahassee, FL 32399-1741

Test, Research and Training  
Reactor Newsletter  
Director of Nuclear Facilities  
University of Florida  
202 Nuclear Science Building  
Gainesville, FL 32611-8300

Brian Shea, Reactor Manager  
Nuclear & Radiological Engineering Dept  
202 Nuclear Sciences Center  
P.O. Box 118300  
University of Florida  
Gainesville, FL 32611-8300

Dean Cammy Abernathy  
University of Florida College of Engineering  
PO Box 116550  
Gainesville, FL 32611

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**ACCESSION NO.: ML13056A400**

**TEMPLATE #: NRC-002**

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

Docket No: 50-083

Report No: 50-083/2013-201

Licensee: University of Florida

Facility: University of Florida Training Reactor

Location: Gainesville, Florida

Dates: February 11–14, 2013

Inspector: Taylor A. Lichatz

Approved by: Gregory T. Bowman, Chief  
Research and Test Reactors Oversight Branch  
Division of Policy and Rulemaking  
Office of Nuclear Reactor Regulation

## EXECUTIVE SUMMARY

University of Florida  
University of Florida Training Reactor  
Inspection Report No. 50-083/2013-201

The primary focus of this routine, announced inspection was the onsite review of selected aspects of the University of Florida's (the licensee's) Class II training reactor safety program including: operations logs and records, procedures, requalification training, experiments, design changes, emergency preparedness, and fuel handling since the last U. S. Nuclear Regulatory Commission (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.

### Operations Logs and Records

- Operation logs and records are maintained as required by the licensee's administrative procedures.

### Procedures

- The program for changing, controlling, and implementing facility procedures was acceptably maintained as required by the Technical Specifications and the applicable procedures.

### Requalification Training

- Operator requalification was conducted as required by the Operator Requalification Plan and the program was being maintained up-to-date.

### Experiments

- The program for reviewing and conducting experiments satisfied procedural and Technical Specification requirements.

### Design Changes

- The review, evaluation, and documentation of changes to the facility satisfied NRC requirements.

### Emergency Preparedness

- The emergency preparedness program, drills, and training of licensee personnel were being conducted in accordance with the Emergency Plan.
- Emergency response equipment was being maintained and alarms were being tested as required.

Fuel Handling

- Fuel movements and inspections were conducted in accordance with Technical Specification and procedural requirements.

## REPORT DETAILS

### Summary of Plant Status

The University of Florida's (the licensee's) 100 kilowatt modified Argonaut training reactor continued to be shutdown due to piping repair, refueling, and design of a new digital console.

#### 1. Operations Logs and Records

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

The inspector reviewed the following to ensure that reactor operations were conducted in accordance with procedures as required by Technical Specification (TS) 6.3 and that records were maintained as required by TS 6.7:

- University of Florida Training Reactor (UFTR) Annual Report for September 1, 2009, through August 31, 2010, dated March 18, 2011
- UFTR Annual Report for September 1, 2010, through August 31, 2011, dated February 29, 2012
- UFTR Operating Log Records for 2011 and 2012
- UFTR Operating Procedure 0.2, "Control of Maintenance," Revision (Rev.) 5, approval dated September 2, 2003
  - Form Standard Operating Procedure (SOP)-0.2A, "UFTR Maintenance Log Page"
- UFTR Operating Procedure A.1, "Pre-Operational Checks," Rev. 18, approval dated September 26, 2006
- UFTR Operating Procedure A.2, "Reactor Start-Up," Rev. 13, approval dated November 9, 2005
- UFTR Operating Procedure A.3, "Operation at Power," Rev. 13, approval dated September 26, 2006
- UFTR Operating Procedure A.4, "Normal Reactor Shutdown," Rev. 12, approval dated November 9, 2005

##### b. Observations and Findings

The inspector reviewed daily operations log records for 2011 and 2012. Reactor operations were carried out in accordance with written procedures as required by TS 6.3. Information on the operational status and maintenance of the facility was recorded in the log book.

Although there were no reactor operations during the inspection, observation of other operational functions confirmed that activities at the facility were carried out in accordance with written procedures and TS requirements.

c. Conclusion

Reactor operations were conducted in accordance with TS and procedural requirements. Logs and associated records were being maintained as required.

**2. Procedures**

a. Inspection Scope (IP 69001)

The inspector reviewed the following to ensure that the requirements of TS 6.3 were being met concerning written procedures:

- Records of changes and temporary changes to procedures
- Reactor Safety Review Subcommittee (RSRS) meeting minutes for 2011 and 2012
- UFTR Operating Procedure 0.1, "Operating Document Controls," Rev. 5, approval dated July 12, 2011
  - Form SOP-0.1A, "Cover Sheet/Change Request Form"
  - Form SOP-0.1B, "Distribution Request Form"
  - Form SOP-0.1C, "Review Standard"
  - Form SOP-0.1D, "Location List for Controlled and Information Copies of UFTR Operating Documents Manuals"
- UFTR Operating Procedure A.1, "Pre-Operational Checks," Rev. 18, approval dated September 26, 2006
- UFTR Operating Procedure A.8, "Pneumatic Rapid Sample Transfer (Rabbit) System," Rev. 1, approval dated November 2, 1999
- UFTR Operating Procedure B.1, "Radiological Emergency," Rev. 5, approval dated January 19, 1995
- UFTR Operating Procedure C.3, "Fuel Inventory Procedure," Rev. 4, approval dated August 21, 1997, most recent Temporary Change Notice (TCN) dated November 2005
- UFTR Operating Procedure C.6, "UFTR Receipt, Inspection and Storage of Fresh LEU Fuel," Rev. 0, approval dated September 20, 2006
- UFTR Operating Procedure D.5, "UFTR Reactor Waste Transfer," Rev. 3, approval dated December 16, 2011
- UFTR Operating Procedure E.4, "UFTR Nuclear Instrumentation Calibration Check," Rev. 4, approval dated November 9, 2005
- UFTR Biennial #4 (B-4 Surveillance), "Evaluation of Standard Operating Procedures," Rev. 3, dated February 2003, most recent TCN dated June 2007

b. Observations and Findings

Procedures were available for the activities and items required by TS 6.3. The procedures provided adequate guidance for the conduct of reactor and other operations. The inspector verified that the facility procedures were being reviewed biennially and were revised as needed.



The inspector reviewed the process used to make changes and temporary changes to facility procedures. The licensee implemented the change, review, and approval process by use of administrative procedures UFTR Operating Procedures 0.1 and 0.5. The changes and temporary changes had been controlled, and reviewed and approved by the RSRS as required.

c. Conclusion

The inspector determined that the procedural change, control, and implementation program was acceptably maintained as required by TS.

**3. Requalification Training**

a. Inspection Scope (IP 69001)

To verify that the licensee was complying with the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 55 to implement and maintain an operator requalification program, the inspector reviewed the following:

- Operator training records from 2008 to present
- Operator written examination records from 2008 to present
- Certification letters from the Facility Director written to qualified operators
- UFTR Operating Procedure 0.8, "Control and Documentation of Operating Licensing Requalification Training and Examinations," Rev. 2, approval dated September 9, 2003
  - UFTR Form 0.8A, "Requalification Training Program Attendance Record"
  - UFTR Form 0.8B, "Requalification and Recertification Training Program Documentation"
- UFTR Biennial #5 (B-5 Surveillance), "Evaluation and Recertification of Licensed Operators," Rev. 3, dated February 2003

b. Observations and Findings

There were two senior reactor operators (SROs) licensed to operate the research reactor at the facility. Individual training notebooks, the Requalification Plan and schedule, and the various operators' active duty status records contained the documentation required by the program.

The inspector noted that the training and comprehensive written requalification exams were being completed as required by 10 CFR Part 55. However, due to extended shutdown, several operational requirements within the Requalification Plan had been postponed. Through review of records and interviews with the licensee, it was determined that a formal substitute for the requirement to conduct an annual operational exam has not been developed. Facility walkthrough examinations, done in concurrence with the comprehensive written

examination, were last noted in 2011 for one of the SROs. The inspector opened an inspector follow-up item (IFI) to review the licensee's actions to ensure facility operators are proficient prior to restart. This issue will be tracked as IFI 50-083/2013-201-01.

c. Conclusion

Operator requalification was being completed and being maintained up-to-date as required by the licensee's operator requalification program.

**4. Experiments**

a. Inspection Scope (IP 69001)

The inspector reviewed selected aspects of the following to assure compliance with TS 3.5 and 6.4:

- UFTR operating log records for 2011 and 2012
- Experiment logs and records for the year 2007 and 2008
- RSRS meeting minutes for 2011 and 2012
- Technical Specifications and Bases for the University of Florida Training Reactor, issued August 30, 1982
- UFTR Annual Report for September 1, 2009, through August 31, 2010, dated March 18, 2011
- UFTR Annual Report for September 1, 2010 through August 31, 2011, dated February 29, 2012
- UFTR Operating Procedure A.5, "Experiments," Rev. 5, approval dated October 13, 2006
  - UFTR Form SOP-A.5A, "Request for UFTR Operation (Run Request Form)"
- UFTR Operating Procedure A.8, "Pneumatic Rapid Transfer (Rabbit) System," Rev. 1, approval dated November 2, 1999
  - UFTR Form SOP-A.8A, "Rabbit System Operator Certification"
- UFTR Operating Procedure D.4, "Removing Irradiated Samples from UFTR Experimental Ports," Rev. 7, approval dated October 16, 2001
  - UFTR Form SOP-0.4A, "Record of Sample Irradiation and Disposition"

b. Observations and Findings

The inspector noted that no experiments have been performed since 2007 due to the extended shutdown status. Experiment logs and records were checked to verify this, as well as the most recent annual reports and RSRS meeting minutes.

Currently the licensee is performing maintenance on the rabbit system. They are considering direct replacement of the tubing, or potentially replacement of the system through the hot cave. This would be completed prior to restart.

c. Conclusion

Due to extended shutdown, no experiments have been performed since 2007. The program for reviewing and conducting experiments satisfied TS and procedural requirements.

**5. Design Change Functions**

a. Inspection Scope (IP 69001)

The inspector reviewed selected aspects of the following to assure that changes, tests, and experiments were being reviewed as required by 10 CFR 50.59:

- RSRS meeting minutes for 2011 and 2012
- Technical Specifications and Bases for the University of Florida Training Reactor, issued August 30, 1982
- UFTR Annual Report for September 1, 2009 through August 31, 2010, dated March 18, 2011
- UFTR Annual Report for September 1, 2010 through August 31, 2011, dated February 29, 2012
- UFTR Operating Procedure 0.3, "Control and Documentation of UFTR Modifications," Rev. 1, approval dated November 2, 1999, most recent TCN dated September 2003
  - UFTR Form SOP-0.3A, "QA [Quality Assurance] Document Checklist for Modification Packages"
- UFTR Operating Procedure 0.4, "10 CFR 50.59 Screening and Evaluation," Rev. 3, approval dated October 21, 2011
  - UFTR Form SOP-0.4A, "10 CFR 50.59 Applicability"
  - UFTR Form SOP-0.4B, "10 CFR 50.59 Screening"
  - UFTR Form SOP-0.4C, "10 CFR 50.59 Evaluation"

b. Observations and Findings

The inspector noted that several changes at the facility have been made, such as equipment replacement and facility renovations.

UFTR Operating Procedures 0.3 and 0.4 controlled facility design changes. The inspector reviewed the 10 CFR 50.59 evaluations and corresponding design change packages pertaining to various modifications implemented at the facility. From these reviews, the inspector determined that the facility design change evaluations had adequate supporting documentation and information, as well as post-installation verification testing records when required. The inspector found that the 10 CFR 50.59 reviews and approvals conducted by the RSRS were focused on safety and met TS and UFTR procedure requirements.

c. Conclusion

The program in place for changes, tests, and experiments was being implemented as required by 10 CFR 50.59. Reviews of evaluations were adequately performed by the RSRS.

**6. Emergency Planning**

a. Inspection Scope (IP 69001)

The inspector reviewed selected aspects of the following to verify compliance with the "University of Florida Training Reactor Emergency Plan," Rev. 15, approval dated February 28, 2007:

- UFTR quarterly evacuation drill documentation and critiques for 2011 and 2012
- Training records for licensee staff and support personnel
- Emergency response facilities, supplies, equipment, and instrumentation
- RSRS meeting minutes for 2011 and 2012
- Letter of agreement between the UFTR and University of Florida College of Medicine and Shands Teaching Hospital, dated June 6, 2011
- Letter of agreement between the UFTR and Alchua County Public Safety, Alchua County Emergency Management, dated June 16, 2011
- UFTR Operating Procedure B.1, "Radiological Emergency," Rev. 5, approval dated January 19, 1995
  - UFTR Form SOP-B.1A, "Emergency Procedure Qualification"
- UFTR Operating Procedure B.2, "Emergency Procedure – Fire," Rev. 9, approval dated January 19, 1995
  - UFTR Form SOP-B.2A, "Emergency Action Fire Evaluation"
- UFTR Operating Procedure B.4, "Emergency Procedure – Flood," approval dated August 21, 1997
- UFTR Operating Procedure D.1 Table 2, "Emergency Support Center Equipment Inventory," Rev. 5, approval dated December 1993, most recent TCN dated January 1995
- UFTR Quarterly #3 (Q-3 Surveillance), "Radiological Emergency Evacuation Drill Record," Rev. 3, dated February 2003
- UFTR Annual #4 (A-4 Surveillance), "Comprehensive Check of UFTR Fire Alarm System," Rev. 3, dated February 2003, most recent TCN dated December 2009
- UFTR Biennial #6 (B-6 Surveillance), "Evaluation of Emergency Plan," Rev. 3, dated February 2003

b. Observations and Findings

The inspector reviewed the Emergency Plan (E-Plan) in use at the reactor and verified that it was reviewed biennially as required. The inspector reviewed the UFTR emergency procedures and surveillances as well. It was noted that

several written changes were made in the E-Plan that would be reflected in the new E-Plan once license renewal was completed.

Through records review and interviews with licensee personnel, the inspector determined that they were knowledgeable of the proper actions to take in case of an emergency. Training for these individuals had been conducted quarterly, with an annual comprehensive drill involving support organization personnel. These activities had been documented and reviewed acceptably.

The inspector verified that the letters of agreement between the UFTR and University of Florida College of Medicine and Shands Teaching Hospital and Alchua County Public Safety were being maintained. Both letters stipulated that they would be available during an emergency and provide support for the facility.

Emergency call lists had been revised and updated as needed and were available in the control room and in the emergency cabinet. The inspector also verified that emergency equipment, including decontamination material, was available and was being inventoried.

The inspector met with the Assistant Radiation Control Officer at Shands Teaching Hospital. The hospital was well equipped with plans, procedures, and an emergency cabinet that imitated the one at the UFTR. The hospital also had a decontamination room at the emergency bay area. The inspector determined that the hospital was well prepared for a radiological emergency.

c. Conclusion

The emergency preparedness program was being conducted in accordance with the E-Plan.

**7. Fuel Handling**

a. Inspection Scope (IP 69001)

To ensure that the licensee was following the requirements of TS 3.7, 4.2.7, and 5.8, the inspector reviewed selected aspects of the following:

- Fuel handling and training records for 2010
- UFTR Operating Procedure C.1, "Irradiated Fuel Handling," Rev. 4, approval dated February 28, 1985, most recent TCN dated August 1997
  - UFTR Form SOP-C.1A, "UFTR Fuel Transfer Log Sheet"
- UFTR Operating Procedure C.2, "Fuel Loading," Rev. 6, approval dated September 27, 2006
  - UFTR Form SOP-C.2A, "Log Sheet for Fresh Fuel Removal from Fuel Storage Safe and Placement in the Core"
  - UFTR Form SOP-C.2B, "Core Fuel Loading Duty Assignment Sheet"

- UFTR Operating Procedure C.4, "Assembly and Disassembly of Irradiated Fuel Elements," Rev. 0, approval dated November 28, 1984, most recent TCN dated October 2003

b. Observations and Findings

According to records and interviews with licensee personnel, the last fuel handling was in 2010 for refueling. Prior to refueling training was held for all those involved. Following a review of the logs and associated fuel handling documentation, the inspector determined that fuel movement, inspection, log keeping, and data recording were completed as required by procedures and met TS 3.7, 4.2.7, and 5.8 requirements.

c. Conclusion

Fuel movements and inspections were conducted in accordance with TS and procedural requirements.

**8. Exit Meeting Summary**

The inspector reviewed the inspection results with members of licensee management and UFTR staff at the conclusion of the inspection on February 14, 2013. The licensee acknowledged the items presented. The inspector informed the licensee of the NRC's plans to conduct inspections prior to restart of the facility to ensure operators are proficient and regulatory requirements have been met.

## **PARTIAL LIST OF PERSONS CONTACTED**

M. Berglund	Operations and Maintenance Supervisor
D. Cronin	Licensing Engineer
K. Jordan	Facility Director
B. Shea	Reactor Manager
S. Stanford	Assistant Radiation Control Officer

## **INSPECTION PROCEDURE USED**

IP 69001	Class II Research and Test Reactors
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## **ITEMS OPENED, CLOSED, AND DISCUSSED**

### Open

50-083/2013-201-01	IFI	Review the licensee's actions to ensure facility operators are proficient prior to restart.
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## **LIST OF ACRONYMS USED**

10 CFR	Title 10 of the <i>Code of Federal Regulations</i>
ADAMS	NRC's Agencywide Documents Access and Management System
E-Plan	Emergency Plan
IFI	Inspector Follow-up Item
IP	Inspection Procedure
NRC	U.S. Nuclear Regulatory Commission
QA	Quality Assurance
Rev.	Revision/Revised
RSRS	Reactor Safety Review Subcommittee
SOP	Standard Operating Procedure
SRO	Senior Reactor Operator
TCN	Temporary Change Notice
TS	Technical Specifications
UFTR	University of Florida Training Reactor