May 11, 2004

Dr. William G. Vernetson
Director of Nuclear Facilities
Department of Nuclear and
Radiological Engineering
P. O. Box 11830
University of Florida
Gainesville, FL 32611

SUBJECT: NRC INSPECTION REPORT NO. 50-083/2004-201 AND NOTICE OF DEVIATION

Dear Dr. Vernetson:

This letter refers to the inspection conducted on April 19-22, 2004, at your University of Florida Test 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 concern or noncompliance of NRC requirements was identified. No response to this letter is required.

In accordance with 10 CFR 2.390 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.

Based on the results of this inspection, the NRC has determined that a deviation from your commitment to the NRC to issue two overdue Annual Reports was identified. The deviation is cited in the enclosed Notice of Deviation (Notice) and the circumstances surrounding this deviation is described in the subject inspection report.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

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

Sincerely,

/RA/

James E. Lyons, Program Director
New, Research and Test Reactors Program
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

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

Enclosures: 1. Notice of Deviation
2. NRC Inspection Report No. 50-083/2004-201

cc w/enclosures: Please see next page

cc:

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ENCLOSURE 1

NOTICE OF DEVIATION

University of Florida
University of Florida Training Reactor

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

During an NRC inspection conducted on April 19-22, 2004, a deviation from your commitment to the NRC to issue two overdue Annual Reports was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600, the deviation is listed below:

During an inspection in January 2003, the licensee made a commitment to the NRC to complete and issue Annual Reports for the facility for the 1999-2000 and the 2000-2001 reporting periods that had not been issued as of January 16, 2003.

Contrary to the above, during a review on April 22, 2004, it was noted that the Annual Reports for the facility for those time periods had not been completed or issued as the licensee had indicated.

Please provide to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555, with a copy to the responsible inspector, in writing within 30 days of the date of this Notice, (1) the reason for the deviation, or if contested, the basis for disputing the deviation, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further deviations, and (4) the date when your corrective action will be completed. 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, D.C. 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the NRC's document system (ADAMS), 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. ADAMS is accessible from the NRC Web site at (the Public Electronic Reading Room) http://www.nrc.gov/reading-rm/adams.html. 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 2.730(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.

Dated at Rockville, Maryland
this 11th day of May 2004.

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

Docket No:	50-083
License No:	R-56
Report No:	50-083/2004-201
Licensee:	University of Florida
Facility:	University of Florida Training Reactor
Location:	Gainesville, FL
Dates:	April 19-22, 2004
Inspector:	Craig Bassett
Approved by:	James E. Lyons, Program Director New, Research and Test Reactors Program Division of Regulatory Improvement Programs Office of Nuclear Reactor Regulation

EXECUTIVE SUMMARY

University of Florida
University of Florida Training Reactor
Inspection Report No.: 50-083/2004-201

The primary focus of this routine, announced inspection was the onsite review of selected aspects of the licensee's Class II research reactor safety programs including: organizational structure and staffing, review and audit and design change functions, procedures, radiation protection, effluent and environmental monitoring, transportation of radioactive materials, security, and material control and accounting 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 operations organizational structure and responsibilities were consistent with Technical Specifications Sections 6.2.1 - 6.2.4 requirements.

Review and Audit and Design Change Functions

- The review and audit program was being conducted acceptably by the Reactor Safety Review Subcommittee as stipulated in Technical Specifications Section 6.2.5.

- The design control program was being implemented as required.

Procedures

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

Radiation Protection Program

- 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 being implemented by the licensee satisfied regulatory requirements.

Effluent and Environmental Monitoring

- Effluent monitoring satisfied procedural and regulatory requirements and releases were within the specified regulatory and Technical Specification limits.

Transportation of Radioactive Materials

- Transfer of radioactive material from the University of Florida Training Reactor to the State of Florida (Agreement State) License was completed and documented in accordance with licensee procedural requirements.

Security

- Security facilities, equipment, procedures, and controls satisfied the Physical Security Plan requirements.

Material Control and Accounting

- Special nuclear material was acceptably controlled and tracked as required by 10 CFR Part 70.

REPORT DETAILS

Summary of Plant Status

The licensee's one hundred kilowatt modified Argonaut-UTR type research and test reactor continued to be operated in support of education, operator training, surveillance, contract or service work, and experiments. During the inspection, the reactor was not operated.

1. Organizational Structure and Staffing

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

The inspector reviewed selected aspects of the following regarding the licensee's organization and staffing to ensure that the requirements of Sections 6.2.1 - 6.2.4 of Technical Specifications (TS), Amendment No. 23, dated December 28, 2001, were being met:

- organizational structure for the University of Florida Training Reactor (UFTR)
- current staff qualifications
- management responsibilities as outlined in the TS
- selected portions of the UFTR Operating Log pages for the past year through the present

b. Observations and Findings

The operations organizational structure had not functionally changed since the last NRC inspection (refer to NRC Inspection Report 50-083/2003-201). The operations staff was comprised of two Senior Reactor Operators (SROs), which included the Facility Director, and two people in training to become licensed SROs. TS Section 6.2.4 specifies that the training and qualification criteria contained in the ANSI/ANS (American National Standards Institute) Standard 15.4-1977, "Standards for Selection and Training of Personnel for Research Reactors," are required to be met by UFTR personnel. The inspector verified that the education, training, and experience of the operations staff met ANSI/ANS 15.4-1977 requirements. Staffing, during reactor operation, was as required. UFTR staff continued to receive HP support from the University Radiation Control Officer and his staff. Review of records verified that management responsibilities were administered as required by the TS and applicable procedures.

c. Conclusions

The operations organizational structure and staffing were consistent with TS Section 6.2. Shift staffing met the minimum requirements for current operations.

2. Review and Audit and Design Change Functions

a. Inspection Scope (IP 69001)

In order to verify that the licensee had established and conducted reviews and audits as required in TS Section 6.2.5, the inspector reviewed selected aspects of:

- Reactor Safety Review Subcommittee (RSRS) meeting minutes from October 2001 through 2004

- safety review and audit records for the past two years and licensee responses to the reviews and audits
- facility design changes and records for the past two years
- UFTR Standard Operating Procedure (SOP)-0.1, "Operating Document Controls," Revision (Rev) 3, dated September 2003
- UFTR SOP-0.2, "Control of Maintenance," Rev 4, dated May 1987
- UFTR Form SOP-0.2A, "UFTR Work Assignment and Maintenance Log," Rev 4, dated May 1987
- UFTR SOP-0.3, "Control of Documentation of UFTR Modifications," Rev 1, dated October 1999
- UFTR Form SOP-0.3A, "QA Document Checklist for Modification Packages," Rev 1, dated October 1999
- UFTR SOP-0.4, "10 CFR 50.59 Evaluation and Determination," Rev 2, dated July 2000
- UFTR Form SOP-0.4A, "10 CFR 50.59 Evaluation and Determination," Rev 2, dated July 2000
- UFTR Form SOP-0.4B, "Supporting Material for 10 CFR 50.59 Determination," Rev 2, dated July 2000
- UFTR SOP-0.5, "UFTR Quality Assurance Program," Rev 2, dated July 1991
- UFTR Form SOP-0.5B1"Procurement Document Package Coversheet," Rev 2, dated July 1991
- UFTR Form SOP-0.5E, "Annual QA Audit Checklist," Rev 3, dated February 2003

b. Observations and Findings

(1) Review and Audit Functions

The RSRS committee met 23 times during the period from October 2001 to January 2004. At least one meeting was held each quarter at intervals not to exceed four months as required by TS Section 6.2.5 (2). The membership also satisfied the charter requirements stipulated in the TS. Review of the minutes indicated that the committee provided guidance and direction to ensure suitable oversight of reactor operations. The RSRS committee minutes and audit records also showed that safety reviews and individual audits had been completed at the required frequency and submitted to the Dean of the College of Engineering within three months of completion for the functional areas specified by TS Section 6.2.5(4). The audits appeared to be comprehensive and well documented. The inspector noted that the licensee took appropriate corrective actions in response to the audit findings when appropriate. Committee records documented that procedure changes were reviewed as required as well.

(2) Design Change Functions

The inspector reviewed the 10 CFR 50.59 evaluations and corresponding design change packages for selected changes for 2003. From these reviews, the inspector determined that the evaluations had adequate supporting documentation and information. Additionally, the inspector found that the 10 CFR 50.59 reviews and approvals were focused on safety and met TS and UFTR procedure requirements. Post installation verification testing of systems or equipment that had been changed was completed and adequately documented. Procedure and drawing changes were included in the change packages and were consistent with TS and UFTR requirements for facility changes. None of the changes posed a safety question or required a change to the TS.

c. Conclusions

Audits and reviews were being conducted by the RSRS in accordance with the requirements specified in TS Section 6.2.5. The licensee's design change program was being implemented as required.

3. Procedures

a. Inspection Scope (IP 69001)

The inspector reviewed selected aspects of the following to ensure that the requirements of TS Section 6.3 were met:

- administrative controls for changing procedures
- records of changes and temporary changes
- RSRS meeting minutes for 2001 through 2004
- UFTR SOP-0.1, "Operating Document Controls," Rev 3, dated September 2003
- UFTR Form SOP-0.1A, "Cover Sheet/Change Request Form," Rev 3, dated September 2003
- UFTR SOP-0.5, "UFTR Quality Assurance Program," Rev 3, dated February 2003

b. Observations and Findings

Procedures were available for those tasks and items required by TS Section 6.3. The procedures were adequate to perform the reactor and other operations which they covered.

The inspector reviewed changes and temporary changes to selected procedures. The licensee implemented changes and temporary changes to procedures, and the associated review and approval processes, by use of administrative procedures UFTR SOP-0.1 and -0.5. The changes and temporary changes had been controlled, and approved and reviewed by the RSRS committee as required.

The inspector reviewed training records and interviewed the staff, and determined that the training of personnel on procedures and subsequent changes to procedures was effective. Personnel were also observed performing maintenance activities and a weekly survey in accordance with applicable procedures. The inspector determined that use of and adherence to the procedures were acceptable.

c. Conclusions

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

4. Radiation Protection Program

a. Inspection Scope (IP 69001)

The inspector reviewed the following to verify compliance with 10 CFR Parts 19 and 20 and TS Sections 3.4.1 and 4.2.4:

- radiation and contamination survey records for 2003 to date
- UFTR facility dosimetry records for 2002 through 2003
- calibration and periodic check records for radiation monitoring instruments documented on the applicable forms for 2002 to date
- University of Florida "Radiation Control Guide" last issued February 1997
- ALARA Policy as outlined the "UFTR ALARA Program," Rev 0, dated December 1993
- University of Florida (UFL) Radiation Control Committee meeting minutes for December 2003 and March 2004
- 4th Quarter ALARA Report of the UFL Radiation Control and Radiological Services Department for the Radiation Control Committee
- UFTR SOP-D.1, "UFTR Radiation Protection and Control," Rev 5, dated December 1993 and Temporary Change Notice (TCN) dated October 2001
- UFTR Form SOP-D.1A, "UFTR Radiation Weekly Survey," Rev 5, dated December 1993
- UFTR Form SOP-D.1B, "UFTR Swipe Survey Results," Rev 5, dated December 1993
- UFTR SOP-D.2, "Radiation Work Permit," Rev 10, dated March 1987
- UFTR Form SOP-D.2A, "Radiation Work Permit, University of Florida Training Reactor," Rev 10, dated March 1987 and TCN dated January 1999
- UFTR SOP-D.3, "Primary Equipment Pit Entry," Rev 4, dated October 2001
- UFTR SOP-D.4, "Removing Irradiated Samples from UFTR Experimental Ports," Rev 7, dated October 2001
- UFTR Quarterly #2 (Q-2 Surveillance), "Calibration Check of Area and Stack Radiation Monitors," Rev 3, dated February 2003
- UFTR Quarterly #4 (Q-4 Surveillance), "Unrestricted Area Indoor/Outdoor Radiation Survey," Rev 3, dated February 2003
- UFTR Quarterly #5 (Q-5 Surveillance), "Restricted Area Radiation Survey," Rev 3, dated February 2003
- UFTR Quarterly #9 (Q-9 Surveillance), "Quarterly Calibration of Air Particulate Detector," Rev 2, dated July 1991

The inspector also toured the facility, conducted a radiation survey of selected areas, and observed the use of dosimetry and radiation monitoring equipment. Radiological signs and other postings were observed as well.

b. Observations and Findings

(1) Surveys

The inspector reviewed weekly radiation and contamination surveys conducted by reactor staff personnel. These were surveys of facility controlled areas including the Radiochemistry Laboratory (Lab) and classroom, the NAA (Neutron Activation Analysis) Lab, the Control Room, and the Reactor Cell from 2003 to date. The inspector also reviewed quarterly general area radiation surveys of restricted and unrestricted areas completed by the licensee and UFL Environmental Health and Safety (EH&S) Department personnel. The results were documented on the appropriate forms and were evaluated and reviewed as required. No readings or results were noted that exceeded set action levels but the licensee indicated that corrective action would be taken if a problem were detected.

During the inspection, the inspector conducted a radiation survey of the Radiochemistry and NAA Labs and the Reactor Cell and compared the readings detected with those found by the licensee. The results were comparable and no anomalies were noted.

(2) Postings and Notices

The inspector reviewed the postings at the entrances to various controlled areas including the Control Room, the Reactor Cell, and the Radiochemistry Lab in the UFTR facility. 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 properly posted. No unmarked radioactive material was detected in the facility. Copies of current notices to workers required by 10 CFR Part 19 were posted in various locations throughout the facility, including on a bulletin board in the Control Room.

(3) Dosimetry

The licensee used a National Voluntary Laboratory Accreditation Program- accredited vendor (Landauer) to process personnel dosimetry. Through direct observation, the inspector determined that dosimetry was acceptably used by facility personnel.

The inspector determined that the licensee used Optically Stimulated Luminescent (OSL) dosimeters for whole body monitoring of beta and gamma radiation exposure with an additional component to measure fast/thermal neutron radiation. The licensee used thermoluminescent dosimeter (TLD) finger rings for extremity monitoring as needed. An examination of the OSL and TLD results for the past two years showed that the highest occupational doses, as well as doses to the public, were within 10 CFR Part 20 limitations. The records showed that the highest annual whole body exposure received by a single individual for 2002 was 43 millirem (mr) deep dose equivalent (DDE). The highest annual extremity exposure for that year was 44 mr shallow dose equivalent (SDE). For 2003, the highest annual whole body exposure received by a single individual was 4 mr DDE and the highest annual extremity exposure was 21 mr SDE.

(4) Radiation Monitoring Equipment

The calibration records of portable survey meters, friskers, fixed radiation detectors, and air monitoring instruments in use at the facility were reviewed. The records showed that the calibrations were completed by either reactor staff or campus EH&S Division personnel. The calibrations were tracked and controlled using a Microsoft Access database. The inspector confirmed that the frequencies of the calibrations, completed quarterly or semiannually, satisfied the requirements established in the TS Section 4.2.4 and 10 CFR 20.1501(b). All instruments checked by the inspector had a current calibration sticker attached. The inspector also verified that the calibration and check sources' geometry and energies matched those used in actual detection or analyses.

(5) Radiation Protection Program

The licensee's Radiation Protection Program was established in the University of Florida "Radiation Control Guide" dated February 1997 and the UFTR SOPs. 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 program was being reviewed annually as required. The ALARA Policy was also outlined and established in the "Radiation Control Guide," in Section 7 of the TS, and in the "UFTR ALARA Program," dated December 1993. The ALARA Policy provided guidance for keeping doses as low as reasonably achievable and was consistent with the guidance in 10 CFR Part 20.

(6) Radiation Work Permit Program

The inspector reviewed selected Radiation Work Permits (RWPs) that had been written and used during 2003 as stipulated in UFTR SOP-D.2. It was noted that the controls specified in the RWPs were acceptable and applicable for the type of work being done. The RWPs had been initiated, reviewed, and approved as required. Following completion of the work covered by the various RWPs, they had been terminated as required.

(7) Radiation Protection Training

The inspector reviewed the radiation worker (rad worker) training given to staff members and to part-time assistants such as students. Initial training included attending the UFL EH&S Division's "Radiation Safety Short Course." Refresher training for licensee personnel was given every two years, basically through the Reactor Operator Requalification Program.

The initial and refresher training covered the topics specified in 10 CFR Part 19 as required. Training records showed that personnel were acceptably trained in radiation protection practices. The training program was acceptable.

(8) Facility Tours

The inspector toured the Control Room, Reactor Cell, and other 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 appropriate.

c. Conclusions

The inspector determined that the Radiation Protection Program being implemented by the licensee satisfied regulatory and TS 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) the radiation protection training program was acceptable.

5. Effluent and Environmental Monitoring

a. Inspection Scope (IP 69001)

The inspector reviewed the following to verify compliance with the requirements of 10 CFR Part 20 and TS Sections 3.4.2 - 3.4.6 and 4.2.4:

- data on environmental releases and effluent monitoring contained in the licensee's "Monthly Utilization and General Activities Reports" for 2002 to date
- results of the analyses of air samples taken from the Reactor Room and the stack
- results of the analyses of liquid samples taken from the primary system, the secondary system, and the shield tank
- UFTR SOP-D.1, "UFTR Radiation Protection and Control," Rev 5, dated December 1993
- UFTR Form SOP-D.1C, "Portable Air Sample Activity and LLD Calculation," Rev 5, dated December 1993
- UFTR Form SOP-D.1D, "Liquid Sample Activity and LLD Calculation," Rev 5, dated December 1993
- UFTR SOP-D.7, "Circulation, Sampling, Analysis, and Discharge of Holdup Tank Wastewater," Rev 1, dated April 2002
- UFTR Form SOP-D.7A, "Liquid Sample Activity and LLD Calculation," Rev 1, dated April 2002
- UFTR Form SOP-D.7B, "UFTR Waste Water Holdup Tank Release Authorization," Rev 1, dated April 2002

b. Observation and Findings

The inspector reviewed the calibration records of the area and stack monitoring systems. These systems had been calibrated quarterly as required by TS Section 4.2.4.

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 adequately 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. This was documented in the licensee's "Monthly Utilization and General Activities Reports" issued for information and review by the RSRS. COMPLY code calculations conducted by the UFL EH&S Division for the UFTR indicated an effective dose equivalent to the public of 0.4 mr for 2002 and 0.5 mr for 2003. Observation of the facility by the inspector found no new potential release paths.

Liquid releases were approved by the Facility Director or Reactor Supervisor and the Radiation Control Officer after analyses indicated that the releases would meet regulatory requirements for discharge into the sanitary sewer.

c. Conclusions

Effluent monitoring satisfied procedural and regulatory requirements and releases were within the specified regulatory and TS limits.

6. Transportation

a. Inspection Scope (IP 86740)

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

- records of radioactive material transfers from the reactor license to the State of Florida materials license for 2002 and to date
- UFTR SOP-D.4, "Removing Irradiated Samples from UFTR Experimental Ports," Rev 7, dated October 2001
- UFTR Form SOP-D.4A, "Record of Sample Irradiation and Disposition," Rev 7, dated October 2001
- UFTR SOP-D.5, "UFTR Reactor Waste Transfer," Rev 2, dated June 2002
- UFTR Form SOP-D.5A, "Radioactive Reactor Waste Transfer Checklist," Rev 2, dated June 2002
- UFTR Form SOP-D.5B, "Radioactive Reactor Waste Container Inventory," Rev 2, dated June 2002
- UFTR Form SOP-D.5C, "Swipe Samples Analysis Report," Rev 2, dated June 2002
- UFTR Form SOP-D.5D, "Radioactive Waste Container Radiation Survey," Rev 2, dated June 2002
- UFTR SOP-D.6, "Control of UFTR Radioactive Material Transfers," Rev 1, dated April 2000
- UFTR Form SOP-D.6A, "University of Florida Training Reactor/University of Florida Radioactive Material Transfer Record," Rev 1, dated April 2000
- UFTR Form SOP-D.6B, "University of Florida/University of Florida Training Reactor Radioactive Material Transfer Record," Rev 1, dated April 2000
- UFTR Form SOP-D.6C, "University of Florida Training Reactor/University of Florida Activated Foil Transfer Record," Rev 1, dated April 2000
- UFTR Form SOP-D.6D, "University of Florida Training Reactor/University of Florida Neutron Radiography Film Cassette Transfer Record," Rev 1, dated April 2000
- UFTR Form SOP-D.6E, "University of Florida Training Reactor/University of Florida Rabbit System Sample Package Transfer Record," Rev 1, dated April 2000

b. Observations and Findings

Through records review and discussions with licensee personnel, the inspector determined that the licensee had transferred radioactive material and solid waste produced by reactor operations to the University of Florida's State of Florida license (Agreement State License), License No. 356-1, expiration date February 28, 2005, for possession, shipment, or disposal. All transfers were recorded on the appropriate and applicable forms. Transfer documentation was kept on file as required.

c. Conclusions

Transfer of radioactive material from the UFTR to the State of Florida (Agreement State) License was completed and documented in accordance with facility procedural requirements.

7. 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 to assure that changes, if any, to the plan had not reduced its overall effectiveness, the inspector reviewed:

- security systems, equipment, and instrumentation
- logs, records, and reports concerning security
- audits of security and responses to the audits
- access, key, and lock control documented in various key logs
- Memorandum (Munroe to Vernetson), "Authorization to Carry Reactor Cell Key," dated December 22, 2003
- UFTR SOP-F.1, "Physical Security Controls," Rev 1, dated May 1984
- UFTR Form SOP-F.1A, "Security Information Form," Rev 1, dated May 1984
- UFTR SOP-F.7, "Security Plan Response Procedure Controls," Rev 3, dated April 2002
- UFTR SOP-F.8, "UFTR Safeguards Reporting Requirements," Rev 1, dated December 1997 and TCN dated October 1999
- UFTR Form SOP-8.B, "Log of UFTR Safeguards Events," Rev 1, dated December 1997
- UFTR Quarterly #8 (Q-8 Surveillance), "Log of Safeguards Events," Rev 1, dated December 1997
- UFTR Semiannual #6 (S-6 Surveillance), "Key Inventory," Rev 2, dated January 2000
- UFTR Semiannual #7 (S-7 Surveillance), "Semiannual Check (Replacement) of Security System Batteries," Rev 2, dated January 2000
- UFTR Annual #6 (A-6 Surveillance), "Physical Inventory of Locks/Cores," Rev 2, dated January 2000

b. Observations and Findings

The PSP was the same as the latest revision approved by the NRC, Revision 14, dated September 25, 1997. The PSP response procedures and various UFTR procedures were consistent with, and adequately implemented, the PSP. The inspector verified that the PSP was being reviewed annually as required. It was also noted that the licensee was properly 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.

The inspector toured the facility and confirmed that the physical protection systems, equipment, and instrumentation were as required by the PSP. The inspector confirmed that security checks, tests, verifications, and periodic audits were performed and tracked as required. Corrective actions were taken when problems with security or the equipment were noted. Access control was implemented as required by the PSP and licensee procedures.

Periodic training was provided to both the UFTR staff and the university campus police. Response rosters were current and posted as required. Communication between the reactor staff and the university police was acceptable and checked periodically.

The inspector contacted the UFL Police Department. UFL police personnel provided security for the UFTR as required by the PSP including periodic patrols and initial response to events at the facility. The inspector interviewed one supervisor and a dispatcher and determined that they were knowledgeable of the reactor facility and their responsibilities in case of a security event. The inspector determined that a current response roster was being maintained at the police dispatch office as required. The inspector also noted a good working relationship between the UFTR and UFL Police Department staff members.

The inspector also visited the Campus Key Shop. The inspector interviewed a specialist there and determined that proper control was being maintained over access to facility keys and the key making process.

c. Conclusions

Security facilities, equipment, training, and procedures satisfied PSP requirements.

8. Material Control and Accounting

a. Inspection Scope (IP 85102)

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

- control of Special Nuclear Material (SNM) storage areas
- annual fuel inventory results and accountability forms, records, and reports
- Nuclear Material Transaction Reports for the time period from October 2001 through September 2003
- Special Nuclear Material (SNM) accountability program
- data on SNM handling contained in the licensee's "Monthly Utilization and General Activities Reports" for 2002 to date
- UFTR Operating Log pages for January 2003 through the present
- UFTR SOP-C.1, "Irradiated Fuel Handling," Rev 4, dated February 1985 and TCN dated October 1999
- UFTR SOP-C.3, "Fuel Inventory Procedure," Rev 4, dated August 1997
- UFTR Form SOP-C.3A, "Fuel Safe Inventory Verification Form," Rev 4, dated August 1997
- UFTR Form SOP-C.3B, "Storage Pit Inventory Verification Form," Rev 4, dated August 1997
- UFTR Form SOP-C.3C, "Inventory and Burnup Determination for Material Status Report," Rev 4, dated August 1997
- UFTR Semiannual #3 (S-3 Surveillance), "Semiannual Inventory of Special Nuclear Material," Rev 4, dated August 1997

b. Observations and Findings

The inspector determined that, in accordance with licensee procedure UFTR SOP-C.3, the licensee's material control and accountability program tracked locations and content of irradiated and unirradiated fuel elements and plates, fission detectors, and other special

nuclear material (SNM) maintained under the R-56 license. The inspector verified that the licensee maintained an amount of SNM that was equal to or less than that authorized by the license. Fuel burn-up related measurements and calculations were found to be acceptable and properly documented. Fuel inventory and movement forms maintained in the UFTR Fuel Inventory folder were properly prepared. These transactions of material control and accountability were cross referenced in the appropriate Operating Log pages.

The records reviewed by the inspector showed that the licensee was maintaining control of SNM as required and that possession and use of SNM was limited to those purposes authorized by the license. The records also showed that the licensee was maintaining control of SNM storage areas as required. The appropriate Nuclear Material Transaction Reports (DOE/NRC Form 741) and Material Status Reports (DOE/NRC Form 742) had been completed semiannually and submitted by the licensee to the appropriate regulatory agencies in a timely manner and as required by 10 CFR 74.13(1). The inspector also verified that physical inventories were conducted at least annually as required by 10 CFR 70.51(d).

During the inspection, the inspector toured the facility, examined the SNM and fuel storage areas, and verified that the licensee was using and storing SNM in those areas designated for such use in the PSP. The inspector also observed an inventory and verified the serial numbers of four unirradiated fuel plates, observed the containers of fuel samples, and verified the locations of irradiated fuel elements that were being maintained in storage as indicated on the applicable licensee records. This demonstrated that the fuel and other SNM were in the locations specified and that records documenting the storage and transfers of SNM were accurate.

c. Conclusions

The licensee's program for controlling and tracking SNM as required by 10 CFR Part 70 was being implemented acceptably.

9. Operations

a. Inspection Scope (IP 69001)

The inspector reviewed the following to determine the licensee's actions taken in response to a self-identified problem:

- Letter submitted by the licensee to the NRC dated May 14, 2003, detailing the potential TS Violation
- Reactor Safety Review Subcommittee (RSRS) meeting minutes from 2002 through 2004
- selected portions of the UFTR Operating Log pages for the past year through the present
- UFTR SOP-E.4, "UFTR Nuclear Instrumentation Calibration Check," Rev 3, dated March 2001 and TCN dated June 2003
- UFTR Quarterly #1 (Q-1 Surveillance), "Check of Scram Functions," Rev 3, dated February 2003 and TCN dated December 2003
- UFTR Annual #2 (A-2 Surveillance), "UFTR Nuclear Instrumentation Calibration Check and Calorimetric Heat Balance," Rev 3, dated March 2001 and TCN dated September 2002

b. Observation and Findings

(1) Self-identified Problem

On January 3, 2003, the licensee conducted a quarterly scram check (UFTR Quarterly #1 (Q-1 Surveillance)). This involved checking and verifying that the Wide Range Detectors circuit tripped at an 8.5% voltage drop. (The trip set point is set at 8.5% to preclude a TS violation which requires a trip at ≥10% loss of high voltage, a Limiting Safety System Setting). On February 26, 2003, the trip was adjusted in a nonconservative direction, per UFTR SOP-E.4, "UFTR Nuclear Instrumentation Calibration Check," Step 7.2.17, for the annual surveillance check (UFTR Annual #2, (A-2 Surveillance)). The procedure did not mention any readjustment of the trip set point until Step 7.4.20. Due to the procedure or some other problem, adjustment of the trip set point back to the original conservative 8.5% setting was apparently overlooked and not changed by personnel performing the surveillance.

On May 2, 2003, during performance of the next required quarterly scram checks (Q-1 Surveillance), it was discovered that the 10% reduction in high voltage power supplied to the wide range detectors failed to cause a trip as required. The actual setting was determined to be at over a 19% voltage drop on May 6, 2003.

On May 14, 2003, the licensee submitted a letter to the NRC detailing the potentially promptly reportable occurrence involving the operation of the reactor with an LSSS less conservative than specified in the TS. The problem was characterized as a potential violation of the TS Section 3.2.3 which specifies the reactor control and safety systems measuring channels and Table 3.1 which specifies that reactor safety system trips at ≥10% loss of chamber high voltage.

As a result of the problem noted, the licensee readjusted the trip set point so that the reactor tripped at an 8.5% voltage drop. The need for careful verbatim compliance with procedures to avoid overlooking required steps was reiterated to all operations staff members during a training session. Also, UFTR SOP-E.4 was revised to correct Step 7.2.17 and Step 7.4.20 to ensure that the trip setting was changed when the high voltage on the detector was changed to preclude recurrence of such an event.

(2) Evaluation of Corrective Actions

In reviewing the UFTR Operating Log pages for the time from February 26 through May 2, 2003, the inspector noted that the loss of high voltage trip was never challenged during reactor operation. It was also noted that the licensee identified the problem and corrected it during surveillance activities conducted at shutdown conditions. In addition, it was noted that other trips were available and, in most cases, the loss of high voltage would have been sufficient to produce a trip, even if 20% loss of high voltage were required. The inspector also reviewed UFTR SOP-E.4 and found that the procedure was revised to ensure that the trip setting was readjusted when the high voltage on the detector was changed.

The licensee was informed that this licensee-identified and corrected violation (involving operation of the reactor with an LSSS less conservative than specified in the UFTR TS) is being treated as a Non-Cited Violation (NCV), consistent with Section VII.B.1 of the NRC Enforcement Policy (NCV 50-083/2004-201-01).

c. Conclusions

The licensee took proper corrective actions in response to a self-identified problem concerning operating the reactor with a non-conservative trip setting for loss of high voltage to the Wide Range Detectors.

10. Follow-up on Previous Inspection Items

a. Inspection Scope (IP 69001)

The inspector reviewed the following to determine the licensee's actions taken in response to a previously identified Inspector Follow-up Item:

- Reactor Safety Review Subcommittee (RSRS) meeting minutes from 2002 through 2004
- the most recently available Annual Reports

b. Observation and Findings

(Closed) IFI 50-083/2003-201-01 - During an NRC inspection in January 2003, the inspector reviewed the RSRS meeting minutes. The inspector noted that the RSRS had been informed that the licensee had not submitted the Annual Reports to the NRC for September 1, 1999 - August 31, 2000 and for September 1, 2000 - August 31, 2001 as required. When questioned about this issue, the licensee stated that the reports had not been issued (as of January 16, 2003). The licensee indicated that the reports were being prepared and made a commitment to issue the 1999-2000 Annual Report by January 24, 2003 and the 2000-2001 Annual Report by February 10, 2003.

During this inspection the issue of completing the Annual Reports was reviewed again. The licensee indicated that, although a person had been hired to complete the annual reports, they were not finished as of the date of the inspection. The licensee was informed that failure to complete the Annual Reports (by the dates indicated above) was an apparent deviation from a commitment made to the NRC (DEV 50-083/2004-201-02). This issue will be reviewed during a subsequent inspection.

c. Conclusions

Appropriate actions were not taken by the licensee concerning a commitment made to the NRC resulting in a deviation.

11. Exit Meeting Summary

The inspector reviewed the inspection results with members of licensee management at the conclusion of the inspection on April 22, 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 certain documents pertaining to security.

PARTIAL LIST OF PERSONS CONTACTED

Licensee Personnel

A. Haghighat	Chairman, Nuclear and Radiological Engineering Department
B. Shea	Senior Reactor Operator
W. Vernetson	Facility Director

Other Personnel

D. Munroe	Radiation Control Officer, Radiation Control and Radiological Services Department, EH&S Division, University of Florida
W. McColskey	Maintenance Specialist, Key Shop, Physical Plant Division, University of Florida
D. Smith	Dispatcher/Communications, University Police Department, University of Florida
M. Welsh	Lieutenant, University Police Department, University of Florida

INSPECTION PROCEDURE (IP) USED

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

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-083/2004-201-01	NCV	Operation of the reactor with an LSSS less conservative than specified in the UFTR TS.
50-083/2004-201-02	DEV	Failure fulfill a commitment to the NRC to complete the UFTR Annual Report for 1999-2000 by January 24, 2003 and the UFTR Annual Report for 2000-2001 by February 10, 2003.

Closed

50-083/2004-201-01	NCV	Operation of the reactor with an LSSS less conservative than specified in the UFTR TS.
50-083/2003-201-01	IFI	Follow-up to verify that the licensee issued the 1999-2000 Annual Report by January 24, 2003 and the 2000-2001 Annual Report by February 10, 2003.

PARTIAL LIST OF ACRONYMS USED

ANSI	American National Standards Institute
ALARA	As Low As Reasonably Achievable
CFR	Code of Federal Regulations
DEV	Deviation
DDE	Deep dose equivalent
EH&S	Environmental Health and Safety Department
HP	Health Physics
IFI	Inspector Follow-up Item
LLD	Lower Limit of Detection
mr	millirem
NAA	Neutron Activation Analysis
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
OSL	Optically Stimulated Luminescent (dosimeters)
RSRS	Reactor Safety Review Subcommittee
RWP	Radiation Work Permit
PSP	Physical Security Program
SDE	Shallow dose equivalent
SNM	Special Nuclear Material
SOP	Standard Operating Procedure
SRO	Senior Reactor Operator
TS	Technical Specifications
UFTR	University of Florida Test Reactor