

November 22,2006

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. 50-83/2006-203 AND NOTICE OF VIOLATION

Dear Dr. Vernetson:

On October 18, 24 and 25, 2006, the U.S. Nuclear Regulatory Commission (NRC) conducted an inspection at your University of Florida Test Reactor facility. The enclosed report documents the inspection results, which were discussed on October 25, 2006, with you, Dr. Hintenlang, Chairman of the Reactor Safety Review Subcommittee, and D. Munroe, Radiation Control Officer.

The inspection examined activities conducted under your license as they relate to safety and compliance with the NRC'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, the NRC has identified a violation of NRC requirements. The violation is cited in the enclosed Notice of Violation (Notice). The circumstances surrounding it are described in detail in the subject inspection report. The violation is of concern because it indicates a lack of attention to detail.

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 accordance with its policies to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

In accordance with Section 2.390 of Title 10 of the Code of Federal Regulations, "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 Publicly Available Records component of NRC's Agencywide Document 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 Craig Bassett at 404-358-6515.

Sincerely,

/RA/

Michael Case, Director
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

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

Enclosures: 1. Notice of Violation
2. NRC Inspection Report No. 50-083/2006-203

cc w/enclosures: Please see next page

University of Florida

Docket No. 50-083

cc:

Dr. Ali Haghghat, Chairman
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Gainesville, FL 32611

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Tallahassee, FL 32399-1741

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NOTICE OF VIOLATION

University of Florida
University of Florida Training Reactor

Docket No.: 50-083
License No.: R-056

During an NRC inspection conducted on October 18, 24 and 25, 2006, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600, the violation is listed below:

10 CFR 71.5(a) requires that each licensee who transports licensed material outside the site of usage, as specified in the NRC license, or where transport is on public highways, or who delivers licensed material to a carrier for transport, shall comply with the applicable requirements of the Department of Transportation (DOT) regulations in 49 CFR parts 171 through 180, appropriate to the mode of transport.

49 CFR 172.301 (a) (1) requires that each person who offers a hazardous material for transportation in a non-bulk packaging must mark the package with the proper shipping name and identification number (preceded by "UN" or "NA" as appropriate).

49 CFR 172.301 (d) requires that each person who offers a hazardous material for transportation in a non-bulk packaging shall mark that package with the name and address of the consignor or consignee.

49 CFR 172.304 (a) (1) requires that the marking required in this subpart must be durable, in English and printed on or affixed to the surface of a package or label, tag, or sign.

49 CFR 172.310 (a) requires that, in addition to other markings required by this subpart, each package containing Class 7 (radioactive) material must be marked such that each package with a gross mass greater than 50 kg must have its gross mass, including the unit of measurement, marked on the outside of the package.

49 CFR 172.324 (b) requires that, for each non-bulk package that contains a hazardous substance, the letters "RQ" shall be marked on the package in association with the proper shipping name.

49 CFR 172.402 (d) (2) requires that each package of Class 7 material that also meets the definition of one or more additional hazard classes must be labeled as a Class 7 material and for each package containing fissile material, other than fissile-excepted material, must bear two FISSILE labels, affixed to opposite side of the package and that such labels, where applicable, must be affixed adjacent to the labels for radioactive materials.

49 CFR 172.403 (c) requires that a package of Class 7 (radioactive) material must be labeled based on the radiation level at the surface of the package and the transport index.

49 CFR 172.403 (f) requires that a package required by this section to be labeled with a RADIOACTIVE label must have two of these labels, affixed to opposite sides of the package.

49 CFR 172.403 (g) requires that the RADIOACTIVE label must contain information entered in the blank spaces provided by legible printing, using durable weather resistant means of marking including the package contents, activity (in SI units), and Transport Index.

Contrary to 49 CFR 172.304 (a) (1) and 49 CFR 172.403 (g), on August 25, 2006, the licensee made a shipment of radioactive material without properly affixing the markings to the package and did not use durable weather resistant means of marking the package. During transit the markings and labeling apparently came off and, when the package of radioactive material was inspected in South Carolina, the markings and labeling applied by the licensee were missing. Therefore, contrary to the requirements stated in 49 CFR 172.301, 310, 402, and 403, the cask was being transported without being properly marked and labeled. Also, contrary to 49 CFR 172.324 (b), the initial marking on the shipment did not contain the letters "RQ" on the package in association with the proper shipping name.

This is a Severity Level IV violation (Supplement V).

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

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, 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 2.390(b) to support a request for withholding confidential

commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days.

Dated at Rockville, Maryland
this 22nd day of November 2006

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

Docket No: 50-083

License No: R-56

Report No: 50-083/2006-203

Licensee: University of Florida

Facility: University of Florida Training Reactor

Location: Gainesville, FL

Dates: October 18, 24 and 25, 2006

Inspectors: Craig Bassett
Marvin Mendonca
Alexander Adams, Jr.

Approved by: Johnny Eads, Branch Chief
Research and Test Reactors Branch B
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

EXECUTIVE SUMMARY

University of Florida
University of Florida Training Reactor
Inspection Report No.: 50-083/2006-203

The primary focus of this special, announced inspection was the onsite review of the licensee's program for the transportation of radioactive materials. One violation was identified for failure to comply with the requirements of the transportation regulations specified in 49 CFR Part 172.

Transportation of Radioactive Materials

- Transfer of radioactive material from the University of Florida Training Reactor to the State of Florida (Agreement State) License was typically completed and documented in accordance with licensee procedural requirements.
- One violation was noted for failure to comply with the marking and labeling requirements specified in 49 CFR Part 172.

Fuel Handling Logs and Records

- Fuel handling logs and activities satisfy Technical Specification and the licensee's procedural requirements.

REPORT DETAILS

Summary of Plant Status

The licensee's one hundred kilowatt modified Argonaut-UTR type research and test reactor, was recently converted to the use of low enriched uranium fuel. When it is restarted it will continue 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. Background

When some Research and Test Reactors (RTRs), including the RTR at the University of Florida, were originally developed and constructed, they were designed to use high enriched uranium (HEU) fuel. It was later recognized that, for security reasons, this was not a desirable situation and RTRs using HEU fuel were required to develop proposals to convert from the use of HEU fuel to low enriched uranium (LEU) fuel. Funding for the original HEU fuel, as well as for the new LEU fuel, was to be supplied by the Department of Energy (DOE). In 2005, the University of Florida Training Reactor (UFTR) received notification from the DOE that the funding to convert from HEU fuel to LEU fuel was available and the licensee proceeded with plans for the conversion. This involved shipping the HEU fuel (spent fuel) to the Savannah River Site (SRS) for storage and ultimate disposal. When the new LEU fuel was available, the licensee completed three spent fuel shipments to the SRS in August 2006 using the BMI-1 Shipping Cask.

On October 2, 2006, the NRC was notified by the State of South Carolina Department of Health and Environmental Control (DHEC) that, on August 25, 2006, their State Transport Police (STP) had stopped and inspected a truck carrying a shipment of radioactive material destined for the SRS. According to the DHEC representative, the radioactive material had been shipped from the University of Florida. When the STP inspected the shipment they found that the shipping cask did not have the required "radioactive material" labels on two opposite sides of the cask and there were no "fissile" labels on two opposite sides of the cask. In addition, the STP noted that the cask did not have some of the proper and required markings. The NRC responded to the State of South Carolina that the agency would visit the University of Florida (an NRC licensee) and review the circumstances surrounding the shipments.

2. Transportation of Radioactive Material

a. Inspection Scope (IPs 69001, 86740)

The inspector reviewed the following to verify compliance with 10 CFR Part 71 and the licensee's Quality Assurance Program for using the BMI-1 Shipping Cask :

- records of three spent fuel shipments from the University of Florida Training Reactor (UFTR) facility to the SRS in South Carolina during August 2006
- UFTR Standard Operating Procedure (SOP)-0.1, "Operating Document Controls," Revision (Rev.) 3, dated September 2003
- UFTR SOP-0.8, "Control and Documentation of Operator Licensing Requalification Training and Examinations," Rev. 2, dated September 2003 and the latest TCN dated August 2006

- UFTR SOP-C.5, "Reception, Loading, and Preparing of the BMI-1 Cask for Transport of Radioactive Materials," Rev. 0, dated August 2006 and the latest TCN dated August 2006
- UFTR SOP-C.6, "UFTR Receipt, Inspection, and Storage of Fresh LEU Fuel," Rev. 0, dated September 2006
- UFTR SOP-D.2, "Radiation Work Permit," Rev. 11, dated October 2003
- UFTR Form SOP 0.1A, "Cover Sheet/Change Request Form," Rev. 3 dated September 2003, concerning changes to UFTR SOP C.5
- UFTR Form SOP 0.8A, "Requalification and Recertification Training Program Attendance Record," Rev. 2 dated September 2003, concerning training on the use and handling of the BMI-1 Cask
- UFTR Form SOP-C.5A, "Preliminary BMI-1 Cask Usage Verification Activities," Rev. 0, dated August 2006
- UFTR Form SOP-C.5B, "BMI-1 Cask Usage Verification Activities for Shipment," Rev. 0, dated August 2006
- UFTR Form SOP-C.5C, "Fuel Transfer Log Sheet," Rev. 0, dated August 2006
- UFTR Form SOP-C.5D, "Irradiated Fuel Handling Duty Assignment Sheet," Rev. 0, dated August 2006
- UFTR Form SOP-C.5E, "BMI-1 Cask Loading Diagram: Texas A&M Basket," Rev. 0, dated August 2006
- UFTR Form SOP-C.5F, "BMI-1 Cask Leak Test Data Sheet," Rev. 0, dated August 2006
- UFTR Form SOP-C.5G, "Post Loading BMI-1 Cask Thermal Data," Rev. 0, dated August 2006
- UFTR Form SOP-C.6A, "UFTR Fresh Fuel Receipt Inspection Documentation," Rev. 0, dated September 2006
- UFTR Form SOP-C.6B, "Log Sheet for Fresh Fuel Placement in Fuel Storage Safe," Rev. 0, dated September 2006
- UFTR Form SOP-C.6C, "Fresh Fuel Receipt/Handling Duty Assignment Sheet," Rev. 0, dated September 2006
- UFTR Form SOP-D.2A, "Radiation Work Permit - University of Florida Training Reactor," Rev. 11, form dated October 2003, concerning BMI-1 Cask Loading, Radiation Work Permit (RWP) No. 06-04-I, dated August 16, 2006
- "University of Florida - BMI-1 Cask Loading Diagram," Rev. 0, dated August 2006, for each of three shipments
- University of Florida Training Reactor Facility, Shipping Quality Assurance Program for Type B Packages, dated June 2006
- NRC Form 618, Certificate of Compliance for Radioactive Material Packages, Certificate Number (No.) 5957, Revision No. 28, Docket No. 71-5957, Package Identification No. USA/5957/B()F
- Georgia Department of Public Safety Motor Carrier Safety Assistance Program, Driver/Vehicle Examination Report, Report No. GA0024000457, dated August 25, 2006
- Letter from the University of Florida to the NRC, Subject: University of Florida Training Reactor, Facility License R-56, Docket 50-83, Request of be Registered as a User of USNRC Package ID Number USA/5957/B()F - Model No. BMI-1 Cask, dated June 19, 2006
- Letter from the NRC to the University of Florida, Subject: User Registration, dated June 21, 2006

- Letter from the University of Florida to the NRC, Subject: University of Florida Training Reactor, Facility License R-56, Docket 50-83, Shipping Quality Assurance Program for Type B Packages, Update, dated July 5, 2006
- Letter from the NRC to the University of Florida, Subject: Quality Assurance Program Approval for Radioactive Material Packages No. 71-0578, Rev. 6, dated July 18, 2006
- Safety Analysis Report for the Model BMI-1 Shipping Cask, Rev. 1, dated February 28, 1995
- University of Missouri Research Reactor (MURR) Procedure, FB-SH-005, "Type B Shipment of Spent Fuel Using the BMI-1 Shipping Cask," Rev. 0, date issued June 1, 2005

b. Observations and Findings

10 CFR 71.5(a) requires that each licensee who transports licensed material outside the site of usage, as specified in the NRC license, or where transport is on public highways, or who delivers licensed material to a carrier for transport, shall comply with the applicable requirements of the Department of Transportation (DOT) regulations in 49 CFR parts 171 through 180, appropriate to the mode of transport.

49 CFR 172.301 (a) (1) requires that each person who offers a hazardous material for transportation in a non-bulk packaging must mark the package with the proper shipping name and identification number (preceded by "UN" or "NA" as appropriate).

49 CFR 172.301 (d) requires that each person who offers a hazardous material for transportation in a non-bulk packaging shall mark that package with the name and address of the consignor or consignee.

49 CFR 172.304 (a) (1) requires that the marking required in this subpart must be durable, in English and printed on or affixed to the surface of a package or label, tag, or sign.

49 CFR 172.310 (a) requires that, in addition to other markings required by this subpart, each package containing Class 7 (radioactive) material must be marked such that each package with a gross mass greater than 50 kg must have its gross mass, including the unit of measurement, marked on the outside of the package.

49 CFR 172.324 (b) requires that, for each non-bulk package that contains a hazardous substance, the letters "RQ" shall be marked on the package in association with the proper shipping name.

49 CFR 172.402 (d) (2) requires that each package of Class 7 material that also meets the definition of one or more additional hazard classes must be labeled as a Class 7 material and for each package containing fissile material, other than fissile-excepted material, must bear two FISSILE labels, affixed to opposite side of the package and that such labels, where applicable, must be affixed adjacent to the labels for radioactive materials.

49 CFR 172.403 (c) requires that a package of Class 7 (radioactive) material must be labeled based on the radiation level at the surface of the package and the transport index.

49 CFR 172.403 (f) requires that a package required by this section to be labeled with a RADIOACTIVE label must have two of these labels, affixed to opposite sides of the package.

49 CFR 172.403 (g) requires that the RADIOACTIVE label must contain information entered in the blank spaces provided by legible printing, using durable weather resistant means of marking including the package contents, activity (in SI units), and Transport Index.

(a) Licensee Quality Assurance (QA) Program and Initial Preparations

10 CFR 71.101 (b) requires each licensee, who uses a package licensed by the NRC to ship radioactive material, to have an approved quality assurance program. The inspector reviewed the licensee's QA Program that had been developed for use in completing the shipment of spent fuel. Through a review of a letter from the NRC to the University of Florida, Subject: Quality Assurance Program Approval for Radioactive Material Packages No. 71-0578, Rev. 6, dated July 18, 2006, the inspector verified that the licensee's QA Program had been approved by the NRC as required. The QA Program required that a QA Supervisor be designated to ensure that checklists were established to verify the completion of and compliance with various inspections and related activities including tests and checks of the cask, proper packaging of the radioactive material, proper marking and labeling of the package, completion of the shipping papers, sign-off on all the related paperwork prior to release of the shipment, and compliance with the procedure. It was noted that double sign-offs were required in many instances to document the completion of various steps in the procedure used to ship radioactive material.

The inspector reviewed the shipping procedure, UFTR SOP-C.5, "Reception, Loading, and Preparing of the BMI-1 Cask for Transport of Radioactive Materials," that had been developed and implemented to ship the spent fuel. The procedure required that the licensee be approved as a registered user of the BMI-1 Cask that was used in the fuel handling and spent fuel shipment operation. Through a review of a letter from the NRC to the University of Florida, Subject: User Registration, dated June 21, 2006, the inspector verified the licensee was a registered user of the cask. In addition, the inspector determined that, as required by the procedure, the licensee had on file, and was familiar with, the Certificate of Compliance for the BMI-1 cask and had a copy on file of the Safety Analysis Report for the cask. The procedure also required that: 1) the licensee verify the annual and biennial inspections of the BMI-1 Cask, 2) an approved NRC highway route for the shipment was current, 3) various notifications be given to the NRC and the Governors' designees of the states of Florida, Georgia, and South Carolina, 4) state and local law enforcement agencies had been notified about the shipments, and 5) Spent Nuclear Fuel Acceptance Criteria information was

transmitted to the Savannah River Site (SRS). These various items had been completed by the licensee as required.

(b) Training

49 CFR 172.704 requires that employees who work with and handle hazardous material (i.e., radioactive material) must be trained and provided with a general awareness of the hazards involved. The inspector verified that the various personnel that were to be involved with the BMI-1 Cask and with fuel handling had received the appropriate training. Department of Transportation (DOT) training had been completed by licensee and support staff personnel on July 12, 2006. Fuel handling, cask loading, procedure compliance, and RWP familiarization training was held on August 14 and 15, 2006. Supplemental training covering the above subjects and revisions to the procedure was held on August 23, 2006. Additional training was conducted on August 30, 2006, prior to the last shipment. The inspector had previously verified that the licensee staff had completed hazardous material training.

(c) Preparation and Loading of the Cask/Package

The inspector reviewed the documentation on the cask receipt, testing, and fuel loading. As required by procedure, each time the cask was received, it was inspected, a leak test was performed, the cask was surveyed and prepared for loading, and specified security controls were established for cask loading operations. Fuel movement and cask loading was then accomplished and the lid was installed. Further tests were completed as required and the cask was then prepared for shipment. These tasks were documented as being completed according to the requirements in the shipping procedure, UFTR SOP-C.5, "Reception, Loading, and Preparing of the BMI-1 Cask for Transport of Radioactive Materials." The inspector verified that these actions were completed in accordance with procedure and that the proper health and safety controls were observed.

(d) Preparation of the Package for Shipment

The inspector noted that following loading operations and completion of various tests were completed. Also, radiological surveys were completed to verify that acceptable levels existed. The results from the radiation surveys conducted at contact with the cask and at one meter from the cask were used to prepare markings and labels for the shipment of the cask.

It was noted that, according to the records of the shipments and photographs taken of the casks, markings and labels were prepared for each shipment. The markings and labels were printed on two sheets of paper and the papers was placed inside plastic sleeves. The paper and plastic was then taped onto the exterior side of the cask on two opposing sides. From the records and photos it was noted that the markings that were prepared and applied to each of the three casks contained the following information:

- Radioactive Material, Type B (U) Package, Fissile, 7, UN3328
- USA/5957/B () F Type B
- Consignee and Consignor address and contact information
- The mass or weight of the package, i.e., 10,523 kilograms (kgs)
- A radioactive/trefoil symbol

It was noted that the markings did not contain the letters "RQ" on the package in association with the proper shipping name as required by 49 CFR 172.324 (b). The licensee was informed that failure to indicate "RQ" on the package was an apparent violation of the transportation regulations specified in 49 CFR 172 (VIO 50-083/2006-203-01).

From the records and photos it was noted that the labels which were prepared and applied to each of the three casks contained the following information:

- Radioactive Yellow II label with the contents (i.e., U-235, etc.), activity specified in Becquerels, and the Transport Index (TI) specified
- Fissile label with a criticality safety index of "100"

(e) Shipping Papers

The inspector reviewed the shipping paperwork that had been prepared for each of the three shipments. From the records it was noted that the shipping paper or Straight Bill of Lading for each shipment contained the following information:

- Consignee and Consignor address and contact information
- 1 Cask (Container type)
- RQ (In the column for the designation of hazardous material)
- Radioactive Material, Type B (U) Package, Fissile, 7, UN3328 (proper shipping name, Hazard Class, and identification number)
- U-235, U-236, PU-239, PU-241 (radionuclides)
- Solid as U-Al alloy (Physical and chemical form designation)
- Activity in SI units (Becquerels)
- Radioactive Yellow II label and Fissile label
- Transport Index specified
- Criticality Safety Index specified
- USA/5957/B () F (package identification)
- The mass or weight of the package, i.e., 10,523 kilograms (kgs)
- An emergency contact number
- Shipper's certification statement

The shipping papers appeared to contain the appropriate and required information for the shipments involved.

(f) South Carolina STP Observations

As noted above, the State of South STP had stopped and inspected a truck carrying a shipment of radioactive material destined for the SRS in South Carolina. The material had been shipped from the University of Florida. Upon

inspection of the shipment, the STP noted that the shipping cask did not have the required "radioactive material" labels on two opposite sides of the cask and there were no "fissile" labels on two opposite of the cask. In addition, the STP noted that the cask did not appear to have all of the proper and required markings.

In reviewing the shipping documents, photographs that were taken prior to departure, and through discussions with the licensee, the inspector noted that the appropriate markings (with the exception of the letter "RQ") and labels had been prepared and applied to the BMI-1 Cask before the cask left the licensee's facility in Gainesville, FL. Licensee representatives indicated that the marking and labels had been placed inside a plastic sleeve and taped to the cask on two opposite sides as required. Drivers of the transport vehicle had report to the licensee that, while transporting the second shipment travel through Georgia (on August 25, 2006), they had to pass through a rain storm. They theorized that the rain loosened the tape and that the markings and labels came off as a result. When the licensee learned of this, they took corrective actions for the third and last shipment. A different type of tape (and a new roll of that different brand of tape) was used to secure the plastic sleeves to the shipping cask. Also a significant amount of tape was used to fasten the plastic sleeves to the cask. No further problems were noted as a result.

(g) NRC Review

As noted above, through records and photograph review and discussions with licensee personnel, the inspector determined that the licensee had apparently applied the appropriate markings and labels to the BMI-1 Shipping Cask on August 25, 2006, as required. However, due to outside circumstances, the markings and labels had come off in transit and were not present when the South Carolina STP personnel inspected the shipment on August 25, 2006. The licensee was informed that failure to adequately affix the markings as required by 49 CFR 172.304 (a) (1) and failure to use a durable weather resistant means of labeling the cask as required by 172.403 (g) resulted in the cask being transported without the proper marking and labeling and was a second example of an apparent violation of the transportation regulations specified in 49 CFR 172 (VIO 50-083/2006-203-01).

c. Conclusions

Three shipments of spent fuel were completed by the licensee. The markings on the shipments lacked the designation of "RQ" required which was apparent violation of the transportation regulations specified in 49 CFR 172. During the second of three shipments, the markings were not adequately affixed to the cask and the licensee did not use a durable weather resistant means of labeling the cask which resulted in the marking and labeling coming off of the shipping cask and the cask being transported without the required markings and labeling. This was noted as a second example of an apparent violation of the transportation regulations specified in 49 CFR 172.

3. Fuel Handling Logs and Procedures

a. Inspection Scope (IP 69001)

The inspector reviewed the following to verify compliance with Technical Specifications and the licensee's procedures:

- Operations Logs from September 1 through September 30, 2006
- UFTR SOP-C.2, "Fuel Loading Procedure," REV 6, dated September 2006
- UFTR SOP-C.6, "UFTR Receipt, Inspection, and Storage of Fresh LEU Fuel," Rev. 0, dated September 2006
- UFTR Surveillance Procedure A.1, daily and weekly pre-operational check data sheets for September 2006.
- UFTR Surveillance Procedure Q-1, check of scram functions data sheets for September 2006
- UFTR Surveillance Procedure S-1, measurement of control blade drop times data sheets for September 2006
- UFTR Surveillance Procedure S-5, measurement of control blade controlled insertion times data sheets for September 2006
- UFTR Radiation Work Permits for September 2006
- UFTR Radiation Survey data sheets for September 2006
- Letter William G. Vernetson, Director of Nuclear Facilities, to Reactor Safety Review Subcommittee, "UFTR Surveillance/Activity Schedule for Loading LEU Fuel," dated September 27, 2006, and approved by RSRS Chairman on September 27, 2006

b. Observations and Findings

The operations logs and associated data sheets showed that required reviews, surveillance and monitoring had been complete prior to loading new fuel into the reactor tank. Specifically, the Reactor Safety Review Subcommittee approved Standard Operating Procedure C.2, "Fuel Loading Procedure" prior to loading of the fresh fuel as required by Technical Specification 6.2.5(3). Surveillance and radiation survey data sheets showed that the required Technical Specification limiting conditions (e.g., Technical Specification 3.3 Reactor Vent System, Technical Specification 3.4 Radiation Monitoring Systems and Radioactive Effluents, Technical Specification 3.7 Fuel an Fuel Handling, and Technical Specification 3.8 Primary Water Quality) were established prior to and during fuel movement. Operating logs indicate that a senior reactor operator was in the control room and another was available, which exceeds the requirements of Technical Specification 6.2.3. Records for the activity including logs, data sheets, survey results were available as required by Technical Specification 6.7. The activities for fuel loading of the fresh fuel was conducted in accordance with applicable procedures as required by Technical Specification 3.7 and 6.3. Loading of fresh fuel was done in order from the most reactive predicted position to the least reactive predicted position. The records show the licensee monitored the sub-critical multiplication as fuel was loaded into the reactor. Critical predictions were done to ensure the reactor was maintained sub-critical.

c. Conclusions

Fuel handling logs and activities satisfy Technical Specification and the licensee's procedural requirements.

4. Exit Meeting Summary

The inspectors reviewed the inspection results with members of licensee management on October 18 and 25, 2006. 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.

PARTIAL LIST OF PERSONS CONTACTED

Licensee Personnel

M. Berglund Senior Reactor Operator
W. Vernetson Facility Director, University of Florida Training Reactor

Other Personnel

D. Hintenlang Chairman, Reactor Safety Review Subcommittee and Associate Professor,
Nuclear and Radiological Engineering Department
D. Munroe Radiation Control Officer, Radiation Control and Radiological Services
Department, Environmental Health and Safety Division, University of Florida

INSPECTION PROCEDURES USED

IP 69001 Class II Research and Test Reactors
IP 86740 Inspection of Transportation Activities

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-083/2006-203-01 VIO Failure to mark shipments of spent fuel the letters "RQ" on the package in association with the proper shipping name as required by 49 CFR 172.324 (b). Also, failure to adequately affix labels to the shipping cask during the second of three shipments and failure to use a durable weather resistant means of labeling the cask which resulted in the marking and labeling coming off of the shipping cask and the cask being transported without the required markings and labeling which was noted as a second example of an apparent violation of the transportation regulations specified in 49 CFR 172.

Closed

None

PARTIAL LIST OF ACRONYMS USED

CFR Code of Federal Regulations
DHEC Department of Health and Environmental Control
DOE Department of Energy
EH&S Environmental Health and Safety Department
HEU High enriched uranium
LEU Low enriched uranium
NRC Nuclear Regulatory Commission
RCO Radiation Control Officer
Rev. Revision
RSRS Reactor Safety Review Subcommittee
RTR Research and Test Reactor
SOP Standard Operating Procedure
SRS Savannah River Site
STP State Transport Police
TCN Temporary Change Notice
UF University of Florida
UFTR University of Florida Training Reactor