

December 28, 2000

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. 50-83/2000-201

Dear Dr. Vernetson:

On November 20-22, 2000, the United States Nuclear Regulatory Commission (NRC) conducted an announced inspection of the University of Florida Research Reactor facility. The enclosed report presents the results of that inspection.

Based on the results of this inspection, the NRC has determined that violations of NRC requirements occurred. These violations are cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding them are described in detail 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.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at (the Public Electronic Reading Room) <http://www.nrc.gov/NRC/ADAMS/index.html>. If you have any questions, please contact Mr. Stephen Holmes at 301-415-8583.

Sincerely,

/RA/

Ledyard B. Marsh, Chief
Events Assessment, Generic Communications and
Non-Power Reactors Branch
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No. 50-83

License No. R-130

Enclosure: Notice of Violation
NRC Inspection Report No. 50-83/2000-201

cc w/enclosure: Please see next page

University of Florida

Docket No. 50-83

cc:

Mr. James S. Tulenko, Chairman
Nuclear Engineering Sciences
Department
University of Florida
202 Nuclear Sciences Center
Gainesville, FL 32611

Administrator
Department of Environmental Regulation
Power Plant 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

Mary E. Clark, Chief
Office of Radiation Control
Department of Health
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1317 Winewood Boulevard
Tallahassee, FL 32399

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NOTICE OF VIOLATION

University of Florida Gainesville
Test Reactor

Docket No. 50-83
License No. R-130

During an NRC inspection conducted on November 20-22, 2000, a violation of NRC requirements were identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600, the violation(s) is (are) listed below:

Technical Specification 6.6.1 **Operating Reports** requires that routine annual reports covering the activities of the reactor facility during the previous calendar year shall be submitted to the commission within six (6) months following the end of each prescribed year.

Contrary to the above, for reactor years August 31, 1997-August 31, 1998, and August 31, 1988-August 31, 1999, the routine annual reports were not submitted within the prescribed time interval.

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

Pursuant to the provisions of 10 CFR 2.201, University of Florida, Gainesville is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555 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 a 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, U. S. Nuclear Regulatory Commission, Washington, DC 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 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/NRC/ADAMS/index.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 2.790(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 this 22nd day of December, 2000.

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

Docket No: 50-83

License No.: R-130

Report No: 50-83/2000-201

Licensee: University of Florida

Facility: University of Florida Test Reactor

Location: University of Florida, Gainesville, FL

Dates: November 20-22, 2000

Inspector: Stephen W. Holmes, Reactor Inspector

Approved by: Ledyard B. Marsh, Chief
Events Assessment, Generic Communications and
Non-Power Reactors Branch
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

EXECUTIVE SUMMARY

This routine, announced inspection included onsite review of selected aspects of the organizational structure and functions program, review and audit program, radiation protection program, radiation protection postings program, radiation protection survey program, personnel dosimetry program, calibration program, effluent program, environmental protection program, procedural control program, training program, events/operations program, transportation program, emergency preparedness program and reports program.

The licensee's programs were acceptably directed toward the protection of public health and safety, and in compliance with NRC requirements since the last NRC inspection of this program.

ORGANIZATIONAL STRUCTURE AND FUNCTIONS

Health physics (HP) staffing and organizational structure and functions satisfied technical specification (TS) requirements.

REVIEW AND AUDIT

The review and audit program satisfied TS requirements.

RADIATION PROTECTION PROGRAM

The radiation protection program (RPP) satisfied the requirements of 10 CFR 19.12 and 10 CFR 20.1101.

RADIATION PROTECTION POSTINGS

Radiological postings satisfied regulatory requirements.

RADIATION PROTECTION SURVEYS

Surveys were performed and documented in a manner sufficient to evaluate, as required by 10 CFR Part 20, the radiation hazards that might exist. TS and licensee administrative control requirements were met.

PERSONNEL DOSIMETRY

The personnel dosimetry program was acceptably implemented and doses were in conformance with licensee and 10 CFR Part 20 limits.

CALIBRATION OF RADIATION MONITORING EQUIPMENT

Portable survey meters, radiation monitoring, and counting lab instruments were being maintained according to TS and industry/equipment manufacturer standards and licensee procedures. Calibrations satisfied TS requirements.

EFFLUENT MONITORING AND RELEASE

The effluent monitoring and release program satisfied NRC requirements.

ENVIRONMENTAL PROTECTION

Environmental monitoring program (EMP) satisfied the radiation protection program requirements.

PROCEDURES-HP

The procedural control and implementation program satisfied TS requirements

TRAINING

HP training satisfied TS and regulatory requirements.

HP EVENTS/OPERATIONS

Events were handled and documented as required. Protective clothing and exit surveys were appropriate and adequately used.

TRANSPORTATION

Radioactive material was transferred and disposed of in accordance with licensee procedures, TS, 49 CFR and 10 CFR Part 20 requirements.

EMERGENCY PREPAREDNESS

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

ANNUAL REPORTS

The annual report for the last two years was not submitted on time. This is a level IV violation of the UFTR TS.

REPORT DETAILS

Summary of Plant Status

Reactor operations were continuing a few times per week. Activities included operator training, experimental irradiations, reactor sharing, tours, and TS inspections and surveillances. No safety concerns were noted.

1. ORGANIZATIONAL STRUCTURE AND FUNCTION

a. Inspection Scope (69001)

The inspector reviewed selected aspects of:

- HP organization and staffing
- qualifications
- management responsibilities
- administrative controls

b. Observations and Findings

The HP organizational structure had not functionally changed since the last inspection. The university radiation safety staff consisted of the Radiation Control Officer (RCO), the assistant RCO, and a number of HP technicians. Their training and experience met the qualifications required by TS. The university staff provided independent surveys, on-call support surveys, required safety oversight surveys and specialized training to the reactor staff.

No lapse in coordination between the HP and reactor staffs was noted.

c. Conclusions

The HP organizational structure and functions were consistent with TS requirements for current operations.

2. REVIEW AND AUDIT

a. Inspection Scope (69001)

The inspector reviewed selected aspects of:

- Radiation Control Committee (RCC) minutes
- Radiation Safety Reactor Subcommittee (RSRS) minutes
- safety review records
- audit records
- responses to safety reviews and audits
- review and audit personnel qualifications

b. Observations and Findings

The RSRS provides both direct reactor operations and radiation safety oversight to the facility. A status report is provided to the campus RCC at their periodic meetings for information and review.

The committees' meeting schedules and membership satisfied licensee requirements. Examination of records confirmed that the committees were reviewing HP operation as required. The committees provided appropriate guidance, direction and oversight to the reactor radiation safety program.

In discussion with the inspector the RCO, a member of the RCC and the RSRS, stated that the reports and communication from the RSRS was sufficient to ensure adequate radiological oversight to the reactor operations.

c. Conclusions

The review and audit program satisfied TS requirements.

3. **RADIATION PROTECTION PROGRAM**

a. Inspection Scope (69001)

The inspector reviewed selected aspects of:

- The RPP
- ALARA reviews
- Radiation Protection Training

b. Observations and Findings

Although individual procedures had been altered, the RPP had not appreciably changed since the last inspection. The licensee reviewed the RPP at least annually in accordance with 10 CFR 20.1101(c). This review and oversight were provided by the RSRS and the RCO staff as required by licensee procedures.

Records confirmed that the RCO specifically reviewed and approved RPP changes, experiments, and radiation protection related events/conditions as required by TS and licensee procedures.

Training records showed that personnel were acceptably trained in radiation protection practices commensurate for the facility and their work.

c. Conclusions

The RPP satisfied the requirements of 10 CFR 19.12 and 10 CFR 20.1101.

4. **RADIATION PROTECTION POSTINGS**

a. Inspection Scope (69001)

The inspector reviewed selected aspects of:

- radiological signs and posting
- facility and equipment during tours

b. Observations and Findings

Caution signs, postings and controls to radiation areas at the UFTR were acceptable for the hazards involved and were as required in 10 CFR Part 20, Subpart J. Licensee personnel observed the indicated precautions for access to the radiation areas. Current copies of NRC Form-3 were posted in appropriate areas in the facility as were current notices to workers required by 10 CFR Part 19.

c. Conclusions

Radiological postings satisfied regulatory requirements.

5. **RADIATION PROTECTION SURVEYS**

a. Inspection Scope (69001)

The inspector reviewed selected aspects of:

- routine surveys and monitoring
- survey and monitoring procedures

b. Observations and Findings

Daily, weekly, monthly, quarterly, and other periodic contamination and radiation surveys, were performed and documented as required by TS and UFTR procedures. HP surveys required for specific reactor operations were also performed and documented as needed or required. Results were evaluated and corrective actions taken and documented when readings/results exceeded set action levels.

Survey results verified that contamination in the facility was infrequent and that both identified contamination and radiation levels were well below NRC and facility limits. Surveys were adequate to evaluate the magnitude, concentration, quantities and potential hazard of radiation levels or radioactive materials present.

c. Conclusions

Surveys were performed and documented in a manner sufficient to evaluate, as required by 10 CFR Part 20, the radiation hazards that might exist. TS and licensee administrative control requirements were met.

6. **PERSONNEL DOSIMETRY**

a. Inspection Scope (69001)

The inspector reviewed selected aspects of:

- licensee procedures
- dosimetry records

b. Observations and Findings

The licensee used a National Voluntary Laboratory Accreditation Program-accredited vendor to process personnel thermoluminescent dosimetry. The licensee's dosimetry program for declared pregnant women satisfied 10 CFR 20.1208 requirements. The RCO maintained and reviewed both the exposure records of the reactor and campus staffs. Doses above set administrative limits were investigated as required.

During the core disassembly, inspection, and reassembly doses to the reactor staff were higher than during normal operations. The inspector verified that the doses, though elevated, were still within NRC requirements and were reasonable based on the work performed. Records documented that the University ALARA program was followed during the work.

c. Conclusions

The personnel dosimetry program was acceptably implemented and doses were in conformance with licensee and 10 CFR Part 20 limits.

7. **CALIBRATION OF RADIATION MONITORING EQUIPMENT**

a. Inspection Scope (69001)

The inspector reviewed selected aspects of:

- maintenance and calibration of radiation monitoring equipment
- periodic checks, quality control, and test source certification records

b. Observations and Findings

The calibration and periodic checks of the portable survey meters, radiation monitoring, and counting lab instruments were performed in-house by the reactor or HP staffs or offsite by certified contractors. Calibration frequencies and procedures were consistent with TS requirements and American National Standards Institute or the manufacturers' recommendations and licensee procedures. Calibration and check sources were traceable to the National Institute of Standards and Technology. The sources' geometry matched those used in actual analyses.

All instruments checked were in calibration. Calibration records were in order.

c. Conclusions

Portable survey meters, radiation monitoring, and counting lab instruments were being maintained according to TS, industry/equipment manufacturer standards, and licensee procedures. Calibrations satisfied TS requirements.

8. **EFFLUENT MONITORING AND RELEASE**

a. Inspection Scope (69001)

The inspector reviewed selected aspects of:

- release records
- counting and analysis program
- maintenance and calibration records
- annual reports

b. Observations and Findings

Gaseous releases were calculated as outlined in the Final Safety Analysis Report (FSAR) and license, and adequately documented as required. The Environmental Protection Agency COMPLY code was also used to verify that gaseous releases met the annual dose constraint of 20.1101(d). Releases were acceptably documented well within the annual dose constraint of 10 CFR 20.1101(d) and TS limits.

Liquid releases were infrequent and largely consisted of non-radioactive water from the reactor building. Discharges to the sewer were approved by the RCO after analyses determined the release would meet regulatory release limits. Releases were generally a small fraction of these limits.

Records confirmed that releases met 10 CFR 20.2003 and Appendix B limits. ALARA principles were acceptably implemented to minimize radioactive releases. Monitoring equipment was acceptably maintained and calibrated. Records were current and acceptably maintained.

c. Conclusions

The effluent monitoring and release program satisfied NRC requirements.

9. **ENVIRONMENTAL PROTECTION**

a. Inspection Scope (69001)

The inspector reviewed selected aspects of:

- the EMP
- environmental records

- procedures
- periodic reports

b. Observations and Findings

The EMP consists of direct periodic radiation measurements at selected restricted and unrestricted locations adjacent to the UFTR using a micro-R meter and environmental monitors (thermoluminescent dosimeters/TLDs) .

Direct radiation measurements (Q-4) in unrestricted areas were not statistically different from background readings. In restricted areas (Q-5) the data confirmed that dosimetry results indicating minimal exposures to personnel was valid.

Environmental TLD measurements in the unrestricted areas confirmed that the dose to the public from licensed operations did not exceed the limits of part 20.1301

c. Conclusions

The EMP satisfied the radiation protection program requirements, and Subpart D- Radiation Doses Limits for Individual Members of the Public.

10. **PROCEDURES-HP**

a. Inspection Scope (69001)

The inspector reviewed selected aspects of:

- administrative controls
- records for changes and temporary changes
- procedural implementation
- logs and records

b. Observations and Findings

HP procedures were available for those tasks and items required by the TS, license, and facility directives. Administrative controls of changes and temporary changes to procedures, and associated review and approval processes were as required.

Training of personnel on procedures and changes was acceptable. Personnel conducted activities in accordance with applicable procedures. Records showed that procedures for potential malfunctions (e.g., radioactive releases and contaminations, and reactor equipment problems) were implemented as required.

Coordination between operation and HP staffs on procedures was acceptable.

c. Conclusions

The procedural control and implementation program satisfied TS requirements.

11. **TRAINING**

a. **Inspection Scope (69001)**

The inspector reviewed selected aspects of:

- training records and rosters
- training procedures

b. **Observations and Findings**

Training was provided to visitors or workers by individual lectures and/or formal classes with exams. The training is focused on what is required based on the individuals status and need i.e., staff, visitor, investigator, fire or police department, escorted, unescorted, etc. Records confirmed that Part 19 training appropriate to individual status and work requirements was given. The inspector verified by observing HP activities and interviewing staff that the training had been received and understood. Review of the training records of a new staff member confirmed that the required "short course" training had also been provided.

Reoccurring HP training to the reactor staff was acceptable in accordance with the requalification training program.

c. **Conclusions**

HP training satisfied TS and regulatory requirements.

12. **HP EVENTS/OPERATIONS**

a. **Inspection Scope (69001)**

The inspector reviewed selected aspects of:

- reactor logs
- HP logs
- training records
- event/incident records

b. **Observations and Findings**

Since the last inspection no TS reportable events occurred.

Protective clothing normally used at the UTFR consisted of lab coat, gloves and booties, if needed. The protective gear was available and used as required by UTFR procedures.

UTFR procedures require monitoring when exiting the reactor bay. The inspector observed staff performing this survey using the portal monitor. Additionally, the staff made sure that the inspector was trained on the use of the monitor and employed it when exiting the bay area.

c. Conclusions

Events were handled and documented as required. Protective clothing and exit surveys were appropriate and adequately used.

13. **TRANSPORTATION**

a. Inspection Scope (86740)

The inspector reviewed selected aspects of:

- radioactive materials shipping procedures
- radioactive materials transportation and transfer records

b. Observations and Findings

Radioactive material and solid waste (which was minimal) produced by reactor operations were transferred to the university's agreement state license for shipment or disposal.

All transfers were recorded on the applicable forms. Transfer documentation was kept on file as required.

c. Conclusions

Radioactive material was transferred and disposed of in accordance with licensee procedures, TS, 49 CFR and 10 CFR Part 20 requirements.

14. **EMERGENCY PREPAREDNESS**

a. Scope (69001)

The inspector reviewed selected aspects of:

- the Emergency Plan
- implementing procedures
- emergency response facilities, supplies, equipment and instrumentation
- training records
- offsite support
- emergency drills and exercises

b. Observations and Findings

The Emergency Plan (E-Plan) in use at the reactor and emergency facilities was the same as the version most recently approved by the NRC. The E-Plan was audited and reviewed as required. Implementing procedures were reviewed and revised as needed to employ the E-Plan effectively. Through records review and interviews with licensee personnel, emergency responders were determined to be knowledgeable of the proper actions to take in case of an emergency. Agreements with outside response organizations were as required. Emergency drills had been conducted as required by the

E-Plan. Emergency preparedness and response training was being completed as required.

The last drill, October 26, 2000 satisfied E-Plan requirements and provided a practical, reasonable, and effective test of the participants.

c. Conclusions

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

15. **ANNUAL REPORTS**

a. Inspection Scope (69001)

The inspector reviewed selected aspects of:

- annual reports
- UFTR procedures
- interviewed staff

b. Observations and Findings

Besides the NRC, the UFTR is required to submit annual reports to a number of entities detailing various aspects of the reactor program. This is normally accomplished by providing a single combined report to all. Although the report includes extra information not specifically required by the TS it more than satisfies the intent of the requirement.

Technical Specification 6.6.1 Operating Reports requires that routine annual reports covering the activities of the reactor facility during the previous calendar year shall be submitted to the commission within six (6) months following the end of each prescribed year.

Contrary to the above, for reactor years August 31, 1997-August 31, 1998, and August 31, 1988-August 31, 1999, the routine annual reports were not submitted within the prescribed time interval. This is a level IV violation (VIO 50-83/2000-201-001).

c. Conclusions

The annual report for the last two years was not submitted on time. This is a level IV violation of the UFTR TS.

16. **EXIT MEETING SUMMARY**

The inspector presented the inspection results to members of licensee management at the conclusion of the inspection on November 22, 2000. 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

* D. Munro	Radiation Safety Officer
D. Kruegel	Radiological Technician
* J. Wolf	Reactor Manager
*W. Vernetson	Director of Nuclear Facilities
A. Vierbichy	Senior Reactor Operator Trainee

(*Attended Exit Meeting)

INSPECTION PROCEDURE (IP) USED

IP 69001	Class II Non-Power Reactors
IP 86740	Transportation Activities

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

VIO 50-83/2000-201-001 Failure to comply with TS 6.6.1 Operating Reports.

Closed

NONE

PARTIAL LIST OF ACRONYMS USED

ALARA	As Low As Reasonably Achievable
E-Plan	Emergency Plan
EMP	Environmental Monitoring Program
HP	Health Physics
UFTR	University of Florida Training Reactor
NRC	Nuclear Regulatory Commission
RCC	Radiation Control Committee
RCO	Radiation Control Officer
RPP	Radiation Protection Program
RSRS	Radiation Safety Reactor Subcommittee
TS	Technical Specifications