



Nuclear Facilities
Department of Nuclear and Radiological Engineering

202 Nuclear Sciences Center
P.O. Box 118300
Gainesville, Florida 32611-8300
Tel: (352) 392-1408
Fax: (352) 392-3380
Email: vernet@ufl.edu

May 14, 2003

Attn: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington DC 20555

**14 Day Report
Potential Tech Spec Violation –
Operation with Safety System
Setting Less Conservative
than Specified in Tech Specs**

University of Florida Training Reactor
Facility License R-56, Docket No. 50-83

Pursuant to the reporting requirements of Paragraphs 6.6.2 (3) (a) and (g) of the UFTR Technical Specifications, a description of what is considered to be a potential violation of the technical specifications was reported by telephone and fax on May 9, 2003 per two telephone conversations with NRC Inspector Stephen Holmes on May 9. The required one day letter dated May 9, 2003 was sent by regular mail on May 10, 2003. This letter constitutes the required 14 day written report including occurrence scenario, NRC notification, evaluation of consequences, corrective action and current status. The potentially promptly reportable occurrence involved the operation of the reactor with a limiting safety system setting (LSSS) less conservative than specified in UFTR Tech Specs.

Scenario

On May 2, 2003, during performance of the quarterly scram checks it was discovered that the 10% reduction in high voltage power supplied to the wide range detectors failed to cause a trip (Step 6a in the quarterly Check of Scram Functions (Q-1 Surveillance)). Maintenance Log Page #03-20 was opened to troubleshoot and repair the malfunction with some checks performed on May 2 to verify the failure to trip as designed for the scram check but most effort devoted to checking circuits and diagrams.

Subsequently, on May 5, 2003 a test was performed to determine the setting of the high voltage power supplied to the wide range detectors. The power supplied was 860 volts, which was consistent with a plateau completed as part of the annual UFTR Nuclear Instrumentation Calibration Check and Calorimetric Heat Balance (A-2 Surveillance) on February 26, 2003. Because of personnel unavailability, the only other effort on this day was to assure understanding of circuit design and proper operation and plan further checks.

Testing was conducted on May 6, 2003 to determine if there was a failure in the circuit since such failures had occurred in the past resulting in failure of the trip test circuit when the actual trip was still operable at <10% voltage drop. HVPS voltage was adjusted to determine if the circuit would cause a trip if voltage were reduced sufficiently. The circuit worked properly by causing a trip with a loss of voltage supplied to the wide range detectors. However, the bistable tripped with a voltage decrease to 693 volts versus the 774 volts (10% drop) required to meet Tech Specs representing over 19% drop in high voltage.

Adjustment of the bistable set point was made and set at 787 volts. The 787 volts is 8.5% below the HVPS voltage of 860 volts. Subsequent repeated testing was performed to ensure that the 8.5% reduction of the high voltage power supply would cause a trip. The circuit tested satisfactory in two cases to close maintenance on May 6, 2003 and again to complete the scram checks (Q-1 Surveillance), closed out with successful completion of the daily preoperational check on May 6. The trip was successfully checked again on May 9, to assure the circuit was not drifting.

The circuit did not appear to be drifting and is typically set conservatively at 8.5% voltage drop to preclude a Tech Spec violation as was assured when the quarterly scram checks (Q-1 Surveillance) were performed for this item on January 3, 2003. The bistable trip was initially set to trip at 693 volts but the high voltage was readjusted later per Standard Operating Procedure (SOP) E.4, Step 7.2.17 for the A-2 Surveillance on February 26, 2003. No mention of any bistable adjustments is made in SOP E.4 until Step 7.4.20. This adjustment was apparently overlooked by personnel performing the surveillance and not changed which is where the error occurred. Therefore, the bistable would not cause a trip (10% loss of high voltage – Limiting Safety System Setting) at the usual conservative setting of 8.5% but rather at over 19% voltage drop as determined on May 6, 2003. This loss of high voltage trip was never challenged during operations and the failure to trip was discovered and corrected during surveillances conducted at shut down conditions.

NRC Notification

NRC Inspector Stephen Holmes was informed of the potential violation on May 9, 2003 and briefed on the occurrence where the quarterly check of the scram function on 10% loss of high voltage to the wide range detector was unsuccessful. Two conversations occurred as the sections of the Tech Specs (Section 3.2.3 and Table 3.1) requiring the limiting safety system setting for 10% loss of high voltage on the Safety 1 channel detector were reviewed and the potential violation agreed upon.

The occurrence of operation with the LSSS less conservative than specified in Tech Specs and the initial delayed communication with NRC was then summarized in a one-day report faxed on May 9 and mailed on May 10, 2003 (see Attachment I). The delayed reporting was because of personnel unavailability with the reactor in administrative shutdown in the interim. Subsequently, NRC Project Manager Alexander Adams was updated in a telephone conversation on May 13, 2003.

Evaluation/Corrective Action

Based upon the reactor control and safety systems measuring channels delineated in Section 3.2.3 of the UFTR Tech Specs and the specification for reactor safety system trips on $\geq 10\%$ loss of chamber high voltage in Table 3.1, it is concluded that UFTR operation from February 26 until May 2, 2003 with the required actual safety system setting less conservative than the LSSS specified in the Tech Specs is a potentially reportable occurrence per UFTR Tech Specs Section 6.6.2 delineating requirements for special reports (Paragraphs (3) (a) and (3) (g)). The applicable sections of the Tech Specs requiring LSSS are Section 3.2.3 (Reactor Control and Safety Systems Measuring Channels) requiring the safety system detector to be operable and in Table 3.1 requiring an automatic trip on loss of $\geq 10\%$ of chamber high voltage.

It should be emphasized that this loss of high voltage trip was never challenged during operations and the failure to trip was discovered and corrected during surveillances conducted at shutdown conditions. In addition, this is only one of many trips available and in most cases, the loss of high voltage would be sufficient to give the trip even if a 20% loss of high voltage were required. The loss of even 10% high voltage without a trip is also likely to be noted by the applicable operator with an unscheduled shutdown initiated to investigate possible causes. In addition, reactor operation was discontinued from discovery of

the event on May 2 through its characterization on May 5 and NRC notification on May 9. All operations staff have also been reminded of the need for careful and verbatim compliance with procedures to avoid overlooking required steps. Finally, plans are to revise SOP-E.4 (UFTR Nuclear Instrumentation Calibration Check) to correct Step 7.2.17 and Step 7.4.20 to assure the trip setting is changed when the high voltage on the detector is changed to preclude recurrence of this event.

Tech Specs Paragraph 6.6.2 (3) (a) requires a prompt report for "operation with actual safety system settings for required systems less conservative than the limiting safety system settings specified in the Technical Specifications." Tech Specs Paragraph 6.6.2 (3) (g) requires such a report for a violation of the Technical Specifications. Since the reactor has been operating since February 26, 2003 (approximately 65 hours of operation) with the LSSS set to trip for too large a voltage drop, this violation extends over that period and is considered promptly reportable.

Current Status/Consequences

Several members of the Reactor Safety Review Subcommittee (RSRS) were informed of this event but there was no operation until after the non-conservative setting was corrected on May 6, 2003 and checked on four occasions to assure proper operation plus the event was communicated to NRC on May 9. No problems were noted during subsequent return to normal operation on May 12. This potential violation for a non-conservative limiting safety system setting was reviewed with the RSRS at its regular meeting on May 13, 2003. The committee essentially agreed with actions taken and with the initial staff evaluation that the occurrence did represent a potential violation of the UFTR Technical Specifications and should be treated as reportable. Reactor Management and the Reactor Safety Review Subcommittee also agree there has been no significant compromise to reactor safety in the occurrence and no impact on the health and safety of staff or the public so this occurrence is now considered closed.

If further information is needed, please advise.

Sincerely,




William G. Vernetson
Director of Nuclear Facilities

WGV/dms
Attachment

cc: A. Adams, NRC Project Manager
C. Bassett, NRC Inspector
Reactor Safety Review Subcommittee

Sworn and subscribed this 15th day of May 2003.


Notary Public



Daniel J. Sanetz
MY COMMISSION # DD061176 EXPIRES
September 30, 2005
BONDED THRU TROY FAIR INSURANCE, INC.



UNIVERSITY OF
FLORIDA

Nuclear Facilities
Department of Nuclear and Radiological Engineering

202 Nuclear Sciences Center
P.O. Box 118300
Gainesville, Florida 32611-8300
Tel: (352) 392-1408
Fax: (352) 392-3380
Email: vernet@ufl.edu

May 9, 2003

Attn: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555

**Potential Tech Spec Violation –
Operation with Safety System
Setting Less Conservative
than Specified in Tech Specs**

University of Florida Training Reactor
Facility License R-56, Docket No. 50-83

As per my telephone conversation on May 9, 2003 with NRC Inspector Stephen Holmes concerning UFTR operation with a non-conservative setting for the Limiting Safety System Setting (LSSS) for loss of detector chamber high voltage, we have concluded that this operation with the LSSS less conservative than specified in Tech Spec Table 3.1 is a potentially promptly reportable occurrence per UFTR Technical Specifications Section 6.6.2 delineating requirements for special reports. The applicable section of the Tech Specs requiring the wide range chamber is Section 3.2.3 (Reactor Control and Safety Systems Measuring Channels) which provides a list of required operable channels which includes the chamber for which the LSSS for loss of high voltage was not conservative. The specifications for reactor safety system trips are those listed in Table 3.1 requiring that the chamber trip on 10% loss of high voltage.

Sincerely,

William G. Vernetson
Director of Nuclear Facilities

WGV/dms

cc: A. Adams, NRC Project Manager
C. Bassett, NRC Inspector
Reactor Safety Review Subcommittee

Sworn and subscribed this 9th day of May 2003.

Notary Public



Daniel J. Sanetz
MY COMMISSION # BD061174 EXPIRES
September 30, 2005
BONDED THRU TROY FARM INSURANCE, INC.