TENNESSEE VALLEY AUTHORITY

Browns Ferry Nuclear Plant Post Office Box 2000 Decatur, Alabama 35602 September 22, 1989

U.S. Nuclear Regulatory Commission Document Control Desk Washington, D.C. 20555

Dear Sir:

TVA - BROWNS FERRY NUCLEAR PLANT UNIT 1 - DOCKET NO. 50-259 - FACILITY OPERATING LICENSE DPR-52 - REPORTABLE OCCURRENCE REPORT BFR0-50-259/89015, R1

The enclosed report provides details concerning a momentary loss of secondary containment caused by failure of welds on the door lock mechanism. This report is submitted in accordance with 10 CFR 50.73 (a)(2)(ii).

This Licensee Event Report has been revised to update the corrective actions and to extend the due date for revising the Maintenance Request (MR) procedure to allow appropriate priorities to be placed on MRs under all plant conditions. Submittal of this report was discussed with NRC Region II Section Chief, W. S. Little, on September 1, 1989.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

J. R. Bynum

Vice President Nuclear Power Production

5n	closures
cc	(Enclosures):
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	U.S. Nuclear Regulatory Commission
	Office of Inspection and Enforcement
	Region II
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	Atlanta, Georgia 30303

NRC Resident Inspector, BFN

INPO Records Center Suite 1500 1100 Circle 75 Parkway Atlanta, Georgia 30339

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U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OM8 NO. 3150-0104 EXPIRES: 8/31/88

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NRC Form 366A

DESCRIPTION OF EVENT

At 0845 on June 27, 1989 while a group of six modifications personnel were leaving the reactor building from the refuel floor to the control building roof, both doors of the unit 1 airlock were opened simultaneously for approximately five (5) seconds. This condition constituted a breach of secondary containment (EIIS System Code NG).

Two doors comprise an airlock which allows passage of personnel from the refuel floor to the control building roof while maintaining secondary containment integrity as long as one door remains closed. These two doors are interlocked so that only one door can be open at a time.

A modifications craft foreman and modifications engineer entered the airlock first through the inboard door, followed by a modifications craftsman and craftsman on a visitor's badge, and finally by another modifications craftsman and craftsman on a visitor's badge. The foreman placed his key card in the cardreader to access the outboard door. When the last man was in the airlock and the inboard door was released, it did not close completely but gave the cardreader a false signal which permitted the outboard door to be opened. At this point all personnel left the airlock to the roof, not knowing that the inboard door was open, breaching secondary containment. An Assistant Unit Operator (AUO) in the area identified the breach of secondary containment, closed the door, and notified the Shift Operations Supervisor (SOS).

During this event, unit 2 was in cold shutdown with irradiated fuel in the vessel. The vessel was in the flooded up condition with the fuel pool gates installed. Units 1 and 3 were defueled.

CAUSE OF EVENT

During performance of the corrective maintenance which was initiated to check the operation of the airlock interlock system, the top mortise lockset was noticed to be protruding from the door at the bottom, hitting the door frame and not permitting the door to close completely without pushing it closed. The bracket which holds the lockset in the door was identified to be loose. The bracket is held in place by two small welds, one on each side of the bracket. These welds were broken loose because of the increased side force on the top mortise assembly being applied by personnel pushing on the door a number of times to make it release. The lock has been sticking frequently because of the lubricant drying out due to increased usage of the door. A large number of modifications have been completed or are being worked during this extended outage in the vent towers and on the control and reactor building roofs.

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Upon further investigation, it was discovered that a maintenance request (MR) had been written on May 1, 1989 to repair the mortise lock in the inboard door. At the time of this event, this MR was in the planning stage. An Assistant Shift Operations Supervisor reviewed the MR and placed a routine level I priority on the MR. This was the highest level of priority allowed by the MR procedure since this situation did not meet the criteria for emergency or immediate attention. These levels of priority are focused on personnel safety and unit operation. This is considered a contributing factor to this event.

Another contributing factor to this event was a personnel action. As good practice, the last man into the airlock should have checked to ensure the inboard door was securely closed.

Even though the interlock was determined to be operating properly, a potential problem with the interlock system design was identified. The interlock system operates on a limit switch which is located in the door frame on the hinge side of the door. The limit switch operates by a button being depressed until contacts in the switch make up which gives a signal the door is closed, allowing the other door to be opened. In this event, when the inboard door was released and stopped against the electric lock without being completely closed, the door was closed enough for the contacts to make up giving a signal that the door was closed. This false signal allowed the outboard door to be opened simultaneously with the inboard door, resulting in the breach of secondary containment.

CORRECTIVE ACTIONS

At 0850, on June 27, 1989, the SOS, following notification of the secondary containment breach, directed the AUO to check the inboard door. The AUO reported that the interlock was not operating properly and had the outboard door padlocked.

A MR was written to check the operation of the interlock system. The interlock system was checked and determined to be operating properly. During this check, the broken welds which hold the lockset bracket in place were identified. The lockset bracket was reattached and operation of the door verified on July 1, 1989.

Signs have been placed at airlocks about proper usage, including instruction to all personnel to make sure airlock doors are completely closed before attempting to open any other door. MRs which affect operability of secondary containment doors will be scheduled for immediate work. The MR procedure will be revised to allow appropriate priorities to be placed on MRs under all plant conditions. Performance of preventive maintenance for secondary containment airlock doors has been increased in frequency. LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OM8 NO. 3150-0104 EXPIRES: 8/31/88

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NRC Form 3664

In addition, the interlock system will be evaluated to determine the feasibility of placing the limit switch which gives the signal that the door is closed inside the lockset instead of in the door frame. The limit switch would then not be activated until the lock was engaged, increasing essurance that the second door could not be opened until the first door was securely closed.

ANALYSIS OF EVENT

The secondary containment system is designed to limit the release of radioactivity to the environment after an accident so that the resulting exposures are kept to a practical minimum and are within the guidelines of 10 CFR 20 and 10 CFR 100, as applicable. At least one door of the airlock is required to be closed to maintain secondary containment. In the event of secondary containment isolation, the standby gas treatment system operation is initiated to maintain the reactor building at a negative pressure (such that air leakage is into, not out of, the building). With both access doors open, the ability to maintain the reactor building at a negative pressure is adversely affected. Considering that the doors were open only momentarily (approximately 5 seconds), it is unlikely that the condition would have posed a significant safety hazard.

PREVIOUS SIMILAR EVENTS	 259/86012	260/86002	296/85012
	259/86028		296/87001

These LERs address momentary losses of secondary containment due to personnel airlock failures; however, the causes of the failures were varied and none were attributed to the lockset brackets.

COMMITMENTS

MRs which affect operability of secondary containment doors will be scheduled for immediate work. The MR procedure will be revised to allow appropriate priorities to be placed on MRs under all plant conditions by September 29, 1989.

The interlock system design on the refuel zone secondary containment doors will be evaluated to determine the feasibility of placing the limit switch inside the lockset instead of in the door frame. This evaluation will be completed prior to unit 2 startup.