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Forwards Suppl Reportable Occurrence Rept #BFRO-SO-296/7821 on 780817. Following reactor scram, cooldown rate was exceeded due to safety valves actuating & not completely closing. Caused by excessive pilot leakage.

NOTARIZED

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TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401

November 8, 1978

Mr. James P. O'Reilly, Director
U.S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region II
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

TENNESSEE VALLEY AUTHORITY - BROWNS FERRY NUCLEAR PLANT UNIT 3 - DOCKET NO. 50-296 - FACILITY OPERATING LICENSE DPR-68 - REPORTABLE OCCURRENCE REPORT BFRO-50-296/7821

This refers to my letter dated August 30, 1978. Enclosed is supplemental reportable occurrence report BFRO-50-296/7821 which provides details concerning main steam relief valves which failed to reseat on two occasions after a unit scram, causing the reactor to exceed the cooldown rate. This report is submitted in accordance with Browns Ferry unit 3 technical specification 6.7.2.A(2).

Very truly yours,

TENNESSEE VALLEY AUTHORITY

H. S. Fox
Director of Power Production

Enclosure (3)
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LER SUPPLEMENTAL INFORMATION

BFRO-50-296/7821

Technical Specification Involved: 3.6.A.1

Reported under Technical Specification: 6.7.2.a.(2)

Date of Occurrence: August 17, 1978

Time of Occurrence: 10:37 p.m.

Unit: 3

Identification and Description of Occurrence

The cooldown rate specified in Technical Specification 3.6.A.1 was exceeded following a reactor scram, and again 2 hours and 43 minutes later, due to safety relief valves actuating and not completely reclosing. On the first occurrence, six valves actuated following the reactor scram. MSRV 1-41 failed to reseat causing an excessive cooldown rate. The second occurrence resulted when MSRV 1-41 reopened at a reactor pressure of approximately 840 lbs. During the blowdown, MSRV 1-30 opened at approximately 580 lbs. and MSRV 1-34 opened at approximately 300 lbs. This second occurrence also resulted in an excessive cooldown rate. In both cases, the torus temperature reached approximately 118^{o} F.

Conditions Prior to First Occurrence

Reactor at 940 MWe.

Apparent Cause of Occurrence

Excessive pilot leakage. On all three valves that were replaced, steam cuts were found on the pilot seat and disc. On valve in position 1-30, the piston rings of the second stage were found to be worn. The second-stage disc and seat of all three indicated leakage but excessive wear or steam cutting was not present. The conditions found in these valves were similar to conditions found in other valves that have experienced similar failures.

LER SUPPLEMENTAL INFORMATION

BFRO-50-296/7821

Analysis of Occurrence

It was determined that the transients were less severe than the design blowdown transients. For conservatism, the transients were considered as two complete blowdowns. The fatigue usage factors are as follows:

Feedwater nozzles	0.00182
Rx vessel at waterline	0.00007
Closure studs	0.00133

Corrective Action

Valves 1-41, 1-30, and 1-34 were replaced prior to return to service of the unit. The blowdowns were analyzed in accordance with standard heatup/cooldown analysis techniques and fatigue usage factors assigned. Long-range corrective action consists of increasing the simmer margin of the valves. Additionally, 2-stage topworks have been procured and will be installed subsequent to evaluation by the Division of Engineering Design. A recent revision to the technical specifications which lowered the setpoint for the reactor water level isolation of the main steam lines should minimize the operation of the safety relief valves.

Failure Data

296/788

JGD:JAH
10/4/78