

TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE
37401



January 4, 1974



Mr. John F. O'Leary, Director
Directorate of Licensing
Office of Regulation
U.S. Atomic Energy Commission
Washington, DC 20545

Dear Mr. O'Leary:

TENNESSEE VALLEY AUTHORITY - BROWNS FERRY NUCLEAR PLANT UNIT 1 -
DOCKET NO. 50-259 - FACILITY OPERATING LICENSE DPR-33 - ABNORMAL
OCCURRENCE REPORT BFAO-7349W

The enclosed report is to provide details concerning reactor main
steam relief valve PCV-1-18 bellows seal leakage alarm indicating
light indicated bellows leakage which occurred on Browns Ferry Nuclear
Plant unit 1 on December 25, 1973, and is submitted in accordance with
Appendix A to Regulatory Guide 1.16, Revision 1, October 1973.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

EFT
for E. F. Thomas
Director of Power Production

Enclosure

CC (Enclosure):

Mr. Norman C. Moseley, Director
Region II Regulatory Operations Office, USAEC
230 Peachtree Street, NW.
Atlanta, Georgia 30303

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ABNORMAL OCCURRENCE REPORT

Report No.--BFAO-7349W
Report Date--January 4, 1974
Occurrence Date--December 25, 1973
Facility--Browns Ferry Nuclear Plant unit 1

Identification of Occurrence

Reactor main steam relief valve PCV-1-18 bellows seal leakage alarm indicating light indicated bellows leakage.

Conditions Prior to Occurrence

Reactor was at 50-percent thermal power following a scheduled outage. PCV-1-18 was one of three replacement valves installed during the outage.

Description of Occurrence

The bellows seal leakage alarm indicating light for PCV-1-18 was observed to indicate bellows leakage.

Designation of Apparent Cause of Occurrence

The exact cause of the occurrence cannot be determined until the pressure switch and bellows assembly are removed from the steam header. Suspected causes are a failed pressure switch, leaking pilot valve bellows, or bellows thread leakage. The relief valve will be removed from the header, disassembled, and the component parts tested at the earliest opportunity.

Analysis of Occurrence

The pilot valve section of the Target Rock safety/relief valve is a small, low-flow pressure sensing and control element which actuates the main valve. The key element of the pilot valve is a machined bellows which acts as a combination piston, spring, and hermetic seal. Leakage past the bellows is monitored by a pressure switch and indicating light. If the bellows chamber is leaking, the popping pressure of the valve is shifted to a higher value depending on degree of leakage; and the valve will no longer operate as a pressure-activated safety valve at the original setpoint. However, the valve retains its capability to function for automatic blowdown and manual operation. The capacity of the other safety and relief valves is such that the unit may be safely operated with one relief valve inoperable.

Corrective Action

The relief valve PCV-1-18 will be removed and replaced with another valve at the earliest opportunity, should it be determined that the bellows is defective. If the pressure switch is found to be defective, it will be changed out and the valve will remain on the header.

Failure Data

Manufacturer--Target Rock Corporation
Hempstead, Long Island, New York

Type Valve--Safety/relief valve
Model 67F
Pilot operated

Size--Inlet Flange = 6"
Outlet Flange = 10"

Serial No.--35

Setpoint--1,090 psi

Capacity--800,000 lb/hr saturated steam