

TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE
37401



April 23, 1974

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



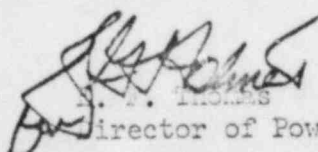
Dear Mr. O'Leary:

TENNESSEE VALLEY AUTHORITY - BROWNS FERRY NUCLEAR PLANT UNIT 1 -
DOCKET NO. 50-259 - FACILITY OPERATING LICENSE DPR-33 - ABNORMAL
OCCURRENCE REPORT BFAO-7423W

The enclosed report is to provide details concerning HPCI failure to reach rated flow in the required time. This event occurred on Browns Ferry Nuclear Plant unit 1 on April 13, 1974, and is submitted in accordance with Appendix A to Regulatory Guide 1.16, Revision 1, October 1973.

Very truly yours,

TENNESSEE VALLEY AUTHORITY


J. F. Thomas
Director of Power Production

Enclosure

CC (Enclosure):

Mr. Norman C. Moseley, Director
Region II Regulatory Operations Office, USAEC
230 Peachtree Street, NW., Suite 818
Atlanta, Georgia 30303

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ABNORMAL OCCURRENCE REPORT

Report No.: BFAO-7423W
Report Date: April 23, 1974
Occurrence Date: April 13, 1974
Facility: Browns Ferry Nuclear Plant unit 1

Identification of Occurrence

HPCI failure to reach rated flow in required time.

Conditions Prior to Occurrence

The reactor was at rated temperature and pressure at approximately 10-percent thermal power.

Description of Occurrence

HPCI maintenance had been performed while the reactor was in a shutdown condition following a special maintenance instruction approved on April 6, 1974. This instruction required post-maintenance testing using auxiliary steam before nuclear heatup and testing using reactor steam at 150 psig and at rated reactor pressure.

During the performance of this post-maintenance testing at rated pressure, HPCI failed to reach rated flow in 25 seconds. It did reach rated flow in 27.5 seconds.

Designation of Apparent Cause of Occurrence

Investigation showed that the ramp signal was taking 22 seconds to reach its maximum output signal as compared to the normal 10 seconds and that there was no output from the EGM control box to the governor actuator. The 10,000-ohm converter zero potentiometer in the combined ramp generator and signal converter was defective. The output transistors in the EGM were also defective.

Analysis of Occurrence

The HPCI had previously met all requirements when tested with auxiliary steam before startup and when tested with reactor steam at the 150 psig level. Safe shutdown of the reactor would have been possible because the remaining core cooling systems were operable.

Corrective Action

Both the combined ramp generator and signal converter and EGM control box were replaced. Surveillance testing was performed with satisfactory results. Repairs have been completed on the defective EGM control box and calibration verified. It is possible that the transistor failure occurred following this test when a brush recorder was connected to the output of the EGM to monitor EGM and ramp signal converter output voltage. We have since determined that the channel of

Corrective Action (continued)

the brush recorder used to measure EGM output was bad. The brush recorder was not used during the surveillance test following completion of the above work. Instructions will be written to provide proper procedure and precautions to be taken before connecting a brush recorder.

Failure Data

The EGM control box is Woodward part No. 8270-811. The defective transistors are as follows:

1. Q9: 2N696
2. Q10: 2N1131

We do not feel that this failure relates to previous failures reported in BFAO-747W and -7416W on HPCI and BFAO-7418W on RCIC. Both HPCI and RCIC EGM control boxes are similar.

The combined ramp generator and signal converter is Woodward part No. 8270-957. The potentiometer is as follows:

1. Trimpot Potentiometer, Bourns, 3255L-1, 10K, subminiature, wirewound element