

TENNESSEE VALLEY AUTHORITY  
CHATTANOOGA, TENNESSEE  
37401



July 26, 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-7443W

The enclosed report is to provide details concerning the maximum average planar linear heat generation rate (MAPLHGR) which was calculated to be 14.47 KW/ft as compared to a limit of 14.35 KW/ft after completion of a full set of TIP's at 1500 hours on July 17, 1974, and is submitted in accordance with Appendix A to Regulatory Guide 1.16, Revision 1, October 1973. This event occurred on Browns Ferry Nuclear Plant unit 1 on July 17, 1974.

Very truly yours, .

TENNESSEE VALLEY AUTHORITY

*E. F. Thomas*  
E. F. Thomas  
Director of Power Production

Enclosure

CC (Enclosure):

Mr. Norman C. Moseley, Director  
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## ABNORMAL OCCURRENCE REPORT

Report No.: BFAO-7443W  
Report Date: July 26, 1974  
Occurrence Date: July 17, 1974  
Facility: Browns Ferry Nuclear Plant unit 1

### Identification of Occurrence

After completion of a full set of TIP's at 1500 hours on July 17, 1974, the maximum average planar linear heat generation rate (MAPLINGR) was calculated to be 14.47 kW/ft as compared to a limit of 14.35 kW/ft.

### Conditions Prior to Occurrence

The reactor had been operating at 100-percent power since July 4, 1974. The MAPLINGR calculated before the TIP set was 14.03 kW/ft.

### Description of Occurrence

Before the full set of TIP's on July 17, 1974, 500 EFPH had elapsed since the previous full set of TIP's was run on June 14, 1974. Technical specification requires TIP set to be run at intervals not to exceed 1,000 EFPH.

During the period June 14 to July 17, there were several relatively minor adjustments to the control rod pattern, but the information from the June 14 TIP set was considered adequate. All other core parameters remained well within limits before and after the July 17 TIP's as illustrated in the following table:

	Limit	Before July 17 TIP Set	After July 17 TIP Set	After July 18 TIP Set And Rod Insertions
Minimum critical heat flux ratio	1.9	2.34	2.43	2.47
Peak Heat Flux	18.5 kW/ft	17.2	17.5	16.9
Peaking Factor	2.63	2.465	2.516	2.437
MAPLINGR	14.35 kW/ft	14.03	14.47	13.84

Description of Occurrence (continued)

A review of core evaluations revealed that application of the 0.44 kW/ft error in MAPLHGR to previous data resulted in the steady-state violation first occurring at 0330 on July 17, 1974.

Designation of Apparent Cause of Occurrence

An error in judgment occurred. More margin should have been maintained between calculated and limiting MAPLHGR values under these conditions.

Analysis of Occurrence

Technical specification 3.5.I on MAPLHGR assures that the peak cladding temperature following the postulated design basis loss-of-coolant accident will not exceed the 2,300° F. limit specified in the Interim Acceptance Criteria (IAC) issued in June 1971. A revised MAPLHGR curve was submitted to AEC on June 3, 1974, which justifies approximately 8-percent additional margin for the current core exposure. Since the current limit was exceeded by only 0.8 percent, a violation of the technical basis for this requirement did not occur.

Corrective Action

An adjustment to the rod pattern was accomplished immediately by inserting control rods. The MAPLHGR dropped to 13.84 kW/ft. The reactor remained at 100-percent power. Responsible engineers have been instructed to maintain a more conservative margin between actual and limiting values of MAPLHGR.