

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)
Browns Ferry - Unit 2DOCKET NUMBER (2)
0 5 0 0 0 2 6 0 1 OF 0 2

TITLE (4)

Automatic Scram Due to High Flux on Intermediate Range Monitor

EVENT DATE (6)			LER NUMBER (8)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (9)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES		DOCKET NUMBER(S)
0	2	2	8	4	0	0	4	0	0	0	3
1	5	8	4								

OPERATING MODE (3)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5. (Check one or more of the following) (11)									
POWER LEVEL (10) 0 0 0	N	20.402(b)		20.406(e)	X	50.73(a)(2)(iv)		73.71(b)			
		20.408(a)(1)(i)		50.73(a)(2)(v)		73.71(c)					
		20.408(a)(1)(ii)		50.73(a)(2)(vi)		OTHER (Specify in Abstract below and in Text, NRC Form 365A)					
		20.408(a)(1)(iii)		50.73(a)(2)(vii)							
		20.408(a)(1)(iv)		50.73(a)(2)(viii)(A)							
		20.408(a)(1)(v)		50.73(a)(2)(ix)		50.73(a)(2)(viii)(B)					
		20.408(a)(1)(vi)		50.73(a)(2)(x)		50.73(a)(2)(x)					

LICENSEE CONTACT FOR THIS LER (12)
NAME
Kieron M. MorkinTELEPHONE NUMBER
AREA CODE
2 0 5 7 2 9 - 0 7 8 8

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)											
CAUSE	SYSTEM	COMPONENT	MANUFAC. TURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFAC. TURER	REPORTABLE TO NPROS	CAUSE	SYSTEM
D	I	G		N							

SUPPLEMENTAL REPORT EXPECTED (14)
YES (If yes, complete EXPECTED SUBMISSION DATE) ☒ NO ☐EXPECTED SUBMISSION DATE (15)
MONTH DAY YEAR
1 5 8 4

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

During startup on unit 2, the reactor scrambled due to a high-flux spike on channels "C" and "F" of the intermediate range monitors (IRM) of the neutron monitoring system. The short period (< 5 seconds) and subsequent reactor scram were the result of the continuous withdrawal of a high-worth control rod. The IRMs function to prevent fuel damage that can result from abnormal transients that occur while operating in the intermediate power range.

Administrative controls to prevent recurrence of fast periods were inadequate to ensure that high-worth rods were properly identified prior to use. Plant written procedures and the nuclear engineer qualification program will both be revised to include formal emphasis on the nuclear engineer's duties and proper control rod sequencing with respect to high-worth rods.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO 3150-0104

EXPIRES 2/31/85

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (3)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Browns Ferry - Unit 2	0500026084	0	04	0	02	OF 02

TEXT (If more space is required, use additional NRC Form 365A's) (17)

Unit 1 was in cold shutdown and unit 3 was in a refueling outage. Unit 2 was in startup and at 0.0 percent power. Only unit 2 was affected by this event.

At 0100 on February 22, 1984, the unit 2 reactor (RCT) scrambled due to a high flux spike on channels (CHA) "C" and "F" of the intermediate range monitors (IRMs) (IG). At the time of the scram, moderator temperature was 213°F and control rod (ROD) 10-19 was at notch 12 and being pulled. The source range monitor (SRM) (IG) count rate was 300 counts per second (cps) on "C" and 600 cps on "D" when a short, apparently (< 5 second) period, occurred. The short period and the subsequent scram were the result of the continuous withdrawal of a high-worth rod from the 00 position. High-worth rods are defined to be those that would result in < 60 second period for a single notch withdrawal or < 30 second period for a double notch withdrawal.

The station nuclear engineer failed to identify control rod 10-19 as being a high-worth rod. Operations personnel verified that all control rods were inserted and the scram response occurred as designed.

The root cause of the event was that administrative controls to prevent the recurrence of fast period, including nuclear engineer training, were inadequate to ensure that high-worth rods were properly designated prior to being used. The nuclear engineer (new to the station since the time of the last fast period incident) on duty at the time of the event was uninformed of the necessity to indicate high-worth rods to the reactor operator. Previous corrective action taken in response to IE Bulletin 79-12 for short periods due to high-worth rods was weak in that it did not require any changes to existing written procedures and discussion of the problem was not formally included in the nuclear engineer qualification program.

Surveillance Instruction 4.3.B.1.a and General Operating Instruction 100-1 have been revised to explicitly require the nuclear engineer to identify on the control rod pull sheets all rods predicted to have a high-worth. The revisions will also require that calculations showing the relative worth of high-worth rods be provided to the operator prior to start-up. The nuclear engineer qualification training program will be revised to include emphasis on the nuclear engineer's duties and proper control rod sequencing with respect to high-worth rods. Additional written procedures will be provided to the nuclear engineers to ensure their ability to prevent fast periods except in cases of equipment malfunction.

The IRM is one of the six major subsystems that makeup the neutron monitoring system (NMS) (IV). The IRMs monitor flux from the upper portion of the SRM subsystem to the lower portion of the power range monitor (IG) subsystem. Data from the NMS subsystems are inputted to the reactor protection system (RPS)(JE). The IRMs are used to prevent fuel damage that could result from abnormal operational transients that occur while operating in the intermediate power range. An IRM trip in each RPS channel results in a full reactor scram. This event presented no hazard to plant equipment, systems operation, or personnel. All affected safety systems performed as designed.

Responsible Plant Section - EN

Previous Similar Events - EFRO-50-260/79011
260/79001

TENNESSEE VALLEY AUTHORITY

Browns Ferry Nuclear Plant
P. O. Box 2000
Decatur, Alabama 35602

March 15, 1984

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

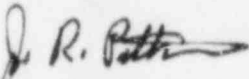
Dear Sir:

TENNESSEE VALLEY AUTHORITY - BROWNS FERRY NUCLEAR PLANT UNIT 2 - DOCKET
NO. 50-260 - FACILITY OPERATING LICENSE DPR-52 - REPORTABLE OCCURRENCE
REPORT BFRO-50-260/84004

The enclosed report provides details concerning automatic scram due to high
flux on intermediate range monitor. This report is submitted in accordance
with 10 CFR 50.73 (a)(2)(iv).

Very truly yours,

TENNESSEE VALLEY AUTHORITY



G. T. Jones
Power Plant Superintendent
Browns Ferry Nuclear Plant

Enclosure

cc (Enclosure):
Regional Administrator
U. S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region II
101 Marietta Street, Suite 2900
Atlanta, GA 30303

NRC Inspector, Browns Ferry Nuclear Plant

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