

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Arkansas Nuclear One, Unit 2										DOCKET NUMBER (2) PAGE (3) 10151010101 31 61 8110F1012											
TITLE (4) LCO Exceeded for Channel A Excure Detector																					
EVENT DATE (5)					LER NUMBER (6)					REPORT DATE (7)					OTHER FACILITIES INVOLVED (8)						
Month		Day		Year		Sequential Number		Revision Number			Month		Day		Year		Facility Names Docket Number(s)				
01		21		01		01		01			01		01		01		0151010101				
OPERATING MODE (9) 1 THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following) (11)																					
POWER LEVEL (10)		20.402(b)					20.405(a)(1)(i)					50.73(a)(2)(iv)					73.71(b)				
		20.405(a)(1)(ii)					50.36(c)(1)					50.73(a)(2)(v)					73.71(c)				
		20.405(a)(1)(iii)					50.36(c)(2)					50.73(a)(2)(vii)					Other (Specify in				
		20.405(a)(1)(iv)					50.73(a)(2)(i)					50.73(a)(2)(viii)(A)					Abstract below and				
		20.405(a)(1)(v)					50.73(a)(2)(ii)					50.73(a)(2)(viii)(B)					in Text, NRC Form				
							50.73(a)(2)(iii)					50.73(a)(2)(x)					366A)				
LICENSEE CONTACT FOR THIS LER (12)																					
Name Patrick Rogers, Special Projects Coordinator										Telephone Number Area Code 510119161413110101											
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																					
Cause		System		Component		Manufacturer		Reportable to NPRDS		Cause		System		Component		Manufacturer		Reportable to NPRDS			
X		I G		A M P		G O G 3		Y													
SUPPLEMENT REPORT EXPECTED (14)																					
Yes (If yes, complete Expected Submission Date) No										EXPECTED SUBMISSION DATE (15)											
ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)																					

On 2/10/84, during the analysis of data from the shape annealing matrix (SAM) test at 50% full power (FP), the output of the Channel A upper excure detector subchannel appeared to saturate at ~ 50.7% FP. On 2/11/84, further analysis revealed a similar phenomenon on the lower excure detector subchannel. The middle excure detector subchannel for Channel A and the excure detectors for the other three channels exhibited satisfactory performance. Though the action requirements of T.S. 3.3.1.1 were met after Channel A was determined to be inoperable, subsequent review revealed that the channel was inoperable for a longer period of time than allowed by Technical Specifications (48 hours). After extensive troubleshooting, the pre-amp assembly and filter were replaced. Testing confirmed proper functioning of detector subchannels, and Channel A was returned to operable status.

8403220020 840311
PDR ADDOCK 05000368
S PDR

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		Sequential		Revision	
		Year	Number	Number	
Arkansas Nuclear One, Unit 2	01510101 31 61 81	81 41	-- 01 01 51	-- 01 01	12101012

TEXT (If more space is required, use additional NRC Form 366A's) (17)

On 2/10/84, during the analysis of data from the shape annealing matrix (SAM) test at 50% FP, it was discovered that the output of Channel A upper excore detector subchannel appeared to saturate at ~ 50.7% power. Investigation of the excore detector response commenced on 2/10/84. Physics testing continued, performing the Reactivity Coefficients at Power test which lasted from 0505 on 2/11/84 until 1535 on 2/11/84. Concurrently on 2/11/84, analysis of the lower excore detector subchannel response for Channel A revealed a similar saturation phenomenon was occurring on this detector. The middle Channel A excore detector subchannel response and the other three channels responses were reviewed, and no anomalies were noted.

At 1742 on 2/11/84, Channel A PPS was bypassed, and the excore detector high voltage power supply was changed. Initial testing after maintenance gave the appearance that the detector subchannels were functioning properly. On 2/13/84, the SAM test was repeated in order to obtain useable data for Channel A. This test revealed that the excore detector subchannel saturation problem still existed. At 1119 on 2/14/84, Channel A was bypassed for further troubleshooting, while concurrent evaluation of the channels operability was conducted. Based on data review and consultation with Combustion Engineering Channel A was determined to be inoperable at 1125 on 2/15/84. Channels B, C and D were verified operable and Channel A was bypassed. Troubleshooting again commenced. Filters were replaced but testing revealed that the saturation condition still existed. A new pre-amp assembly and filter were received, and at 0331 on 2/17/84, installation was completed. Also at 0845, the 'A' excore instrument electronics drawer was changed.

At 1120, Channel A was tripped per action statement 2a of Technical Specification 3.3.1.1. Testing revealed satisfactory results and at 0303, on 2/18/84, Channel A was declared operable and removed from the tripped condition and the SAM test was again performed. This test revealed satisfactory operation of the Channel A excore detector subchannel. The SAM constants were determined and entered for Channel A at 2325 on 2/20/84, after which power escalations commenced.

Safety Significance

Channel A excore detectors supply input to Channel A Core Protection Calculator (CPC) for calculation of DNBR and LPD. Also the detector signals are electronically summed and provide input to the Reactor Protection System (RPS) High Linear Power Trip.

The CPC provides low DNBR and High LPD trip inputs to the RPS. Additionally, the middle excore detector provides input for the High Log Power trip. Since the middle excore detector for Channel A was functioning properly the Channel A High Log Power trip would have functioned properly. At power levels greater than 50% FP, the Channel A DNBR and LPD calculations could have been nonconservative. The Channel A High Linear Power trip also would have been nonconservative. However, because of physics testing at 50% FP the High Linear Power trips were set at 70% FP. As a result the High Linear Power trips would have been expected to occur prior to exceeding the 110% FP Technical Specification setpoint.

It should be noted that the Technical Specification minimum operable channels requirement is three and Channels B, C and D remained operable throughout this period. Consequently, the safety function of excore detector channels was not impaired by this occurrence.

Although the action requirements of the Technical Specifications were met after the channel was determined to be inoperable, the channel was actually inoperable (and not tripped), for approximately 7 days versus the Technical Specification allowable time of 48 hours without being tripped.



ARKANSAS POWER & LIGHT COMPANY

POST OFFICE BOX 551 LITTLE ROCK, ARKANSAS 72203 (501) 371-4000

March 11, 1984

2CAN038406

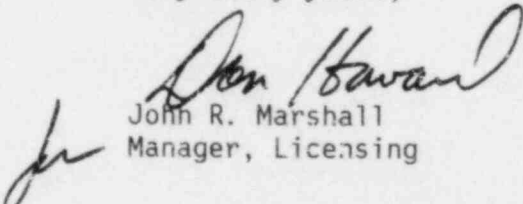
U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Subject: Arkansas Nuclear One - Unit 2
Docket No. 50-368
License No. NPF-6
Licensee Event Report
No. 84-005-00

Gentlemen:

In accordance with 10CFR50.73(a)(2)(i), attached is the subject report concerning improper function of the Channel A excore detector subchannels.

Very truly yours,


John R. Marshall
Manager, Licensing

JRM:RJS:s1

Attachment

cc: Mr. John F. Streeter, Chief
Reactor Project Branch #2
U. S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 1000
Arlington, TX 76011

IE22
1/1