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U. S. Nuclear Regulatory Commission
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SUBJECT: Arkansas Nuclear One - Unit 2
Docket No. 50-368
License No. NPF-6
Licensee Event Report No. 50-368/90-023-00

Gentlemen:

In accordance with 10CFR50.73(a)(2)(i)(B), attached is the subject report concerning a degraded fire barrier caused by an unsealed penetration that was undetected due to personnel error.

Very truly yours,

James J. Fisicaro

James J. Fisicaro
Manager, Licensing

JJF/DW/mmg
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NRC Form 366 U.S. Nuclear Regulatory Commission
(6-89)

Approved OMB No. 3150-0104
Expires: 4/30/92

LICENSEE EVENT REPORT (LER)

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TITLE (4) Degraded Fire Barrier Caused by Unsealed Penetration Which was Undetected Due to Personnel Error

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
Month	Day	Year	Year	Sequential Number	Revision Number	Month	Day	Year	Facility Names	Docket Number(s)
										0 5 0 0 0
1 1	0 5	9 0	9 0	-- 0 2 3	-- 0 0	1 2	0 5	9 0		0 5 0 0 0

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)							
POWER LEVEL (10)	1	0	0	20.402(b)		20.405(c)		50.73(a)(2)(iv)		73.71(b)	
				20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)		73.71(c)	
				20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)		Other (Specify in Abstract below and in Text, NRC Form 366A)	
				20.405(a)(1)(iii)	X	50.73(a)(2)(i)		50.73(a)(2)(viii)(A)			
				20.405(a)(1)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)			
				20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)			

LICENSEE CONTACT FOR THIS LER (12)

Name	Telephone Number
	Area Code
Larry Taylor, Nuclear Safety and Licensing Specialist	5 0 1 9 6 4 - 5 0 0 0

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	

SUPPLEMENT REPORT EXPECTED (14)	EXPECTED SUBMISSION DATE (15)	Month	Day	Year
[ ] Yes (If yes, complete Expected Submission Date) [X] No				

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

On November 5, 1990, while performing a fire barrier penetration seal inspection ANO maintenance personnel identified a fire barrier penetration which was not sealed. The penetration, a one e[illegible] half inch diameter pipe, was in Fire Barrier FB-2101-01, which provides separation between two areas on either side of the 372 foot elevation auxiliary building floor. The root cause for the failure of past inspections to identify the degradation was determined to be personnel error. Additionally, the difficulty of inspecting this penetration due to its location was considered a contributing factor for the pipe not being identified as an open penetration through the fire barrier. Upon discovery, a roving fire watch was established and fire detection instrumentation was verified operable. The penetration will be properly sealed. Procedures used for inspections of fire barriers are being revised and a formal training program on inspection of penetration seals is currently under development. Although the fire barrier was degraded, no significant safety concerns existed since adequate fire detection instrumentation, suppression equipment and Fire Brigade personnel provided significant protection against the spread of a fire.

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

A. Plant Status

At the time of discovery of this condition, Arkansas Nuclear One, Unit Two (ANO-2) was operating at 100 percent of rated thermal power in Mode 1 (Power Operation). Reactor Coolant System (RCS) [AB] pressure was approximately 2250 psia and RCS temperature was about 580 degrees Fahrenheit.

B. Event Description

On November 5, 1990, at 1300 hours, while performing a fire barrier penetration seal inspection as part of an eighteen month Technical Specification surveillance of fire barriers, ANO maintenance personnel identified a fire barrier penetration (Number 2101-0098) which was not sealed. The penetration, a one and one-half inch diameter pipe, was in Fire Barrier FB-2101-01, which provides separation between two areas on either side of the 372 foot elevation auxiliary building floor. The top of the pipe opens into Electrical Switchgear Room 2101, which contains Engineered Safety Features (ESF) switchgear equipment. The bottom of the pipe opens into Room 2077 in the turbine building and is located in an area above the Main Feedwater Pumps.

C. Root Cause

In 1983 and 1984 a complete walkdown and inspection of plant fire barriers was performed as part of a fire barrier upgrade project initiated as a result of 10CFR50, Appendix R. A review of the documentation associated with this initial baseline inspection indicates that inspection personnel properly identified the penetration in the Switchgear Room as an open-ended pipe; however, the fact that the pipe penetrated the floor and was open on the other side of the floor was not identified. This error was compounded when personnel dispositioning discrepancies identified in the initial inspection classified the penetration as an embedded, open-ended equipment drain that did not require internal sealing. Based on this information the root cause was determined to be personnel error on the part of personnel performing the initial inspection and personnel dispositioning identified inspection discrepancies.

The penetration is located in a recessed area underneath a 480 volt Electrical Motor Control Center in the Switchgear Room, and direct visual observation through the top of the penetration is not possible. A mirror is required to inspect for an internal penetration seal. If the mirror is not positioned correctly, the through-penetration can easily be overlooked. From underneath in the turbine building area, the fact that the pipe is an unsealed penetration is not directly observable, since the top of the pipe opens into a dark recessed area covered by the Motor Control Center. Because of this, the difficulty of inspecting a penetration located in such an area is considered a contributing factor for the pipe not being identified as penetrating through the fire barrier.

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

Additionally, three Technical Specification surveillance inspection procedures have been performed since the initial 1984 inspection. Personnel performing these eighteen month surveillances failed to identify the pipe as a fire barrier penetration that was not sealed properly. The procedures required inspection of the penetration; however, as noted previously, identification of the discrepancy would have been relatively difficult due to the location of the penetration and the procedures did not provide explicit instructions to inspectors to ensure awareness of this type of problem.

D. Corrective Actions

Upon discovery of the degraded fire barrier, a roving fire watch was established in the area and fire detection instrumentation in the affected areas was verified operable as required by the Technical Specifications. Due to the limited accessibility and location of the penetration sealing of the pipe may not be possible or desirable while the unit is in operation. Sealing of the penetration will be evaluated and the appropriate repairs made by May 1, 1991.

A number of corrective actions have been or are being implemented as a result of similar fire barrier conditions identified in the past. Prior to performance of the surveillance procedure, which identified this condition, personnel from the ANO fire protection group conducted a pre-job briefing with inspectors. The pre-job briefing provided instructions on penetration inspection techniques and provided information concerning the types of problems encountered during previous inspections. Elements and details discussed during these briefings are planned to be incorporated into the fire barrier inspection procedures by August 1, 1991, with a formal training program to be subsequently developed by September 1, 1991. Additionally, as part of the ANO Business Plan (Action D.5.c), a Penetration Seal Program Assessment has been established and is currently being implemented. The objectives of the program are to verify the physical configuration of the Technical Specification penetration seals, to perform evaluations of the seal designs when deviations are identified, to develop a data base and procedures for seal configuration management and to correct identified deficiencies. This program is scheduled to be completed by December 31, 1991. Also, ANO is currently performing inspections of 100 percent of Technical Specification fire barrier penetration seals in lieu of 10 percent of each type as required by Technical Specifications.

Identification of this degraded fire barrier indicates that the visual inspections of penetration seals are being diligently conducted and that current actions are proving to be effective. As a result, no additional corrective actions specifically related to this event are currently planned. The TS required inspections of ANO-2 fire barriers is continuing and is expected to be completed by January 11, 1991.

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

E. Safety Significance

The fire areas located on either side of the degraded fire barrier penetration are equipped with fixed fire detection systems which annunciate in the ANO-2 Control Room. The area below the penetration is equipped with automatic fire suppression equipment. Although the area above the penetration contains ESF and safe shutdown equipment, redundant equipment is contained in a separate room not affected by this degraded fire barrier. Both areas on either side of FB-2101-01 have a fire duration rating of less than one hour. Fire Brigade personnel, specifically trained in fire fighting, are available at all times in the unlikely event a fire were to occur. Although the fire barrier was degraded, with adequate detection instrumentation, suppression equipment and Fire Brigade personnel, significant protection against the spread of a fire existed; therefore, there was no actual safety significance related to the degraded fire barrier.

F. Basis for Reportability

Technical Specifications require that all fire barriers separating safety related areas shall be operable. Since FB-2101-01 had been inoperable for greater than the allowable time of Technical Specifications, this event is reportable pursuant to 10CFR50.73(a)(2)(i)(B), operation prohibited by Technical Specifications.

G. Additional Information

Degraded fire barrier penetrations as a result of personnel error were reported in LER 50-368/86-015-00, 50-368/87-001-00, 50-368/89-025-00, 50-313/89-026-00, 50-368/90-013-00, 50-313/004-00 and 50-368/90-017-00.

Energy Industry Identification System (EIIS) codes are identified in the text as [XX].