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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. 50-368/90-017-00

Gentlemen:

In accordance with 10CFR50.73(a)(2)(i)(B), attached is the subject report concerning personnel errors during a fire barrier inspection which resulted in an inoperable Technical Specification fire barrier penetration grout seal.

Very truly yours,

E. C. Ewing
General Manager,
Assessment

ECE/DM/sgw
Attachment

cc: Regional Administrator
Region IV
U. S. Nuclear Regulatory Commission
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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Arkansas Nuclear One, Unit Two

DOCKET NUMBER (2) 050003681
PAGE (3) 1 OF 4

TITLE (4) Personnel Errors Resulted in an Inoperable Technical Specification Fire Barrier Penetration Grout Seal During a Fire Barrier Inspection

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	7	1	8	9	0	9	0	--	0	1	7	--	0	0	0	8	1	7	9	0			0	5	0	0	0		

OPERATING MODE (9) 5 THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)

POWER LEVEL (10)	20.402(b)	20.405(a)(1)(i)	20.405(a)(1)(ii)	20.405(a)(1)(iii)	20.405(a)(1)(iv)	20.405(a)(1)(v)	20.405(c)	50.36(c)(1)	50.36(c)(2)	50.73(a)(2)(i)	50.73(a)(2)(ii)	50.73(a)(2)(iii)	50.73(a)(2)(iv)	50.73(a)(2)(v)	50.73(a)(2)(vi)	50.73(a)(2)(vii)(A)	50.73(a)(2)(viii)(B)	50.73(a)(2)(x)	73.71(b)	73.71(c)	Other (Specify in Abstract below and in Text, NRC Form 366A)	
0																						

LICENSEE CONTACT FOR THIS LER (12)

Name	Telephone Number
Dana Millar, Nuclear Safety and Licensing Specialist	Area Code 501964-3100

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

Cause	System	Component	Manufacturer	Reportable to NRPDS	Cause	System	Component	Manufacturer	Reportable to NRPDS

SUPPLEMENTAL REPORT EXPECTED (14)

EXPECTED SUBMISSION DATE (15)	Month	Day	Year
<input type="checkbox"/> Yes (If yes, complete Expected Submission Date) <input checked="" type="checkbox"/> No			

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

On July 18, 1990, while in Cold Shutdown, a craftsman discovered a void in a grout sealed Technical Specification fire barrier penetration as he was performing a work activity on the penetration. A roving fire watch was established as required by Technical Specifications. The root cause of this event was personnel error. During a previous inspection performed in 1983 and 1984, a void was identified in the seal, however, this discrepancy was not correctly dispositioned. The barrier was reinspected a second time during the same time frame and was again found acceptable. The inspections performed since 1984 to satisfy the eighteen month Technical Specification surveillance requirements have also failed to identify the void. The personnel responsible for the eighteen month inspections have been counselled. The seal will be restored to an operable status by October 1, 1990. A prejob briefing to the inspectors performing the eighteen month surveillance will be provided by the Fire Protection Engineering group prior to the next scheduled surveillance. This will provide an assurance that the inspectors are aware of the type of deficiencies that may exist. The fire duration in each area separated by the fire barrier is less than one hour. Adequate detection instrumentation, suppression equipment, and Fire Brigade personnel were available to provide protection against the spread of fire.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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Arkansas Nuclear One, Unit Two	0500036890	--	017	-- 00	02 OF 04

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 in Mode 5 (Cold Shutdown). Reactor Coolant System (RCS) [AB] temperature was approximately 173 degrees Fahrenheit and RCS pressure about 260 psia. A maintenance outage was in progress to repair the pressurizer code safety valves.

B. Event Description

On July 18, 1990, while performing a work activity on a grout sealed penetration (i.e., a wall blackout) in a Technical Specification fire barrier (FB-2073-5), a craftsman discovered a void in the sealant material. The fire barrier separates two areas on the 354 foot elevation, a general access area in the Auxiliary Building and a Demineralizer Area in the Turbine Building. The section of the barrier containing the discrepancy is a blackout which is twenty-six inches tall by forty-six inches wide by twenty-four inches deep. At the top of one side of the barrier (near side), a three to five inch tall by forty-six inch wide by approximately twenty-three inch deep void was discovered. While investigating the cause of this void, a through penetration was discovered on the opposite side (far side) of the blackout. The through wall penetration of the grout sealant also located at the top of the blackout was approximately 1 inch tall by 7.5 inches wide. At the time of discovery of the first void, a roving fire watch was established as required by Technical Specifications. The grout sealant was installed during original plant construction.

C. Root Cause

The root cause of this event was personnel errors. In 1983 and 1984 a complete 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 these inspections indicated via a notation that a void was present at the top of the grouted blackout on the near side of the fire barrier, however, the documentation did not indicate the existence of a void on the far side. The condition was subsequently evaluated as acceptable by an engineer who, according to documentation inspected only the far side of the blackout.

Additionally, each eighteen months the plant fire barriers are inspected as required by Technical Specifications. In 1985, 1987, and 1988 when the eighteen month surveillances were performed, FB-2073-5 was inspected and the degraded condition not identified. The electrical maintenance personnel responsible for these inspections did not adequately inspect the barrier. Two different individuals performed the previous eighteen month inspections. These inspectors had not received adequate training to perform satisfactory inspections. Additionally, procedural weaknesses existed in that there was no criteria for satisfactory or non-satisfactory configurations, therefore, the inspector may have thought the as found configuration was acceptable.

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

D. Corrective Actions

Upon discovery of the degraded sealant material, a roving fire watch was immediately established in the area. The grout sealed penetration will be repaired and restored to an operable status by October 1, 1990, in accordance with approved installation procedures. Additionally, the electrical maintenance personnel who performed the eighteen month surveillances have been counselled.

An eighteen month inspection of 100 percent of the ANO-2 Technical Specification penetrations is scheduled to begin in August or September 1990 and to be completed no later than January 11, 1991. Prior to commencing the eighteen month inspection, Fire Protection Engineering personnel will prioritize the penetration inspections based on fire loading severity. When possible, those barriers which are located in the areas with the greatest fire severity will be inspected first. A prejob briefing will be provided by the Fire Protection Engineering group prior to starting the inspection to ensure the inspectors are aware of the type of deficiencies that may exist and to raise the inspectors level of awareness while performing the inspections. Additionally, approximately ten percent of the required penetrations that are scheduled to be inspected as part of the eighteen month surveillance will be reinspected by Fire Protection Engineering personnel to measure the quality and effectiveness of the prejob briefing, training programs, and surveillance procedures. These inspections will be completed after the eighteen month surveillance has been performed but no later than January 31, 1991.

A training program will be developed addressing the identification of deficient conditions and to provide additional guidance to fire barrier penetration inspectors on the correct method of inspecting fire barriers. Also included in the training program will be a discussion of the penetration seal materials and possible conditions that would render that particular seal material deficient. The program will be developed and the training provided by December 31, 1990.

The procedure governing the inspection of the fire barriers and penetrations will be revised by December 31, 1990. As part of this revision, guidance will be given to specify satisfactory and non-satisfactory criteria which will be used to inspect and accept each barrier.

As part of the ANO Business Plan (Action D.5.c), a Penetration Seal Program Assessment has been established. The objectives of the assessment 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. The assessment inspection and evaluation is being performed by the Fire Protection Engineering group who are specifically trained in the requirements of fire barriers and penetrations. The assessment program is in progress and will be completed by December 31, 1991.

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

E. Safety Significance

The area located inside the auxiliary building has a fixed fire suppression system and smoke detectors which annunciate in the ANO-2 Control Room. The general access area in the Auxiliary Building and the Demineralizer Area in the Turbine Building each have a fire duration of less than one hour. Fire extinguishers or fire hose reels are located in each area. Fire Brigade personnel, specifically trained in fire fighting, are available at all times in the unlikely event a fire were to occur. Although the sealant material was degraded, with adequate detection instrumentation, suppression equipment, and Fire Brigade personnel, significant protection against the spread of a fire existed. Therefore, there are no significant safety concerns related to this condition.

At the ANO site there are approximately 10,000 total penetrations. Approximately 2000 penetrations have already been reverified by the Fire Protection Engineering group with this being the third condition having been identified (see LER 50-313/90-004-00). Therefore, considering the small population of deficient penetration seals that have been identified, the safety concerns as they relate to potentially existent conditions are relatively small for the remaining number of reverifications yet to be performed.

F. Basis for Reportability

Technical Specifications 3.7.11 requires that all fire barriers separating safety related areas shall be operable. This penetration fire barrier has been inoperable for greater than the allowable time of Technical Specifications, therefore, this condition 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, 50-368/89-026-00, 50-368/90-013-00 and 50-313/90-004-00.

Energy Industry Identification System (EIIS) codes are identified in the text as [XX]. 1991.