NRC Form 366
(9-83)

U.S. Nuclear Regulatory Commission
Approved OMB No. 3150-0104
Expires: 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Arkansas Nuclear One, Unit Two	0 5 0 0 0 3 6 8	1 OF 0 3

TITLE (4) Inoperable Penetration Fire Barrier Dampers

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 6	2 1	8 4	8 4	0 1 6	0 1	0 5	2 2	8 6		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9): 1

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
__ 20.405(a)(1)(iii)	X 50.73(a)(2)(i)	__ 50.73(a)(2)(viii)(A)	Abstract below and
__ 20.405(a)(1)(iv)	__ 50.73(a)(2)(ii)	__ 50.73(a)(2)(viii)(B)	in Text, NRC Form
__ 20.405(a)(1)(v)	__ 50.73(a)(2)(iii)	__ 50.73(a)(2)(x)	366A)

LICENSEE CONTACT FOR THIS LER (12)

Name	Telephone Number
Dwight J. Johnson, Plant Licensing Engineer	Area Code 5 0 1 9 6 4 - 3 1 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
X	V I	F B	D M P	A 3 4 0	N				

SUPPLEMENT REPORT EXPECTED (14)

__ Yes (If yes, complete Expected Submission Date) X No

EXPECTED SUBMISSION DATE (15): Month ___ Day ___ Year ___

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

On 6/21/84 Arkansas Nuclear One, Unit 2 (ANO-2) was operating at 100% full power when a technical specification fire barrier damper failed to completely close when a fusible link was removed. Damper inoperability was discovered during an engineering inspection by a site contractor to obtain fusible link rating data. A fire watch had been posted in the area since 5/4/84. The event had no adverse impact on unit operation. On 6/22/84 the site contractor returned to evaluate the cause of the initial failure and to test the redundant damper in the fire barrier penetration. The redundant damper also failed. The failure of the redundant damper was due to the presence of a metal shaving which prevented closure. The problem with the redundant damper was immediately corrected. The initial damper failure appeared to be the result of improper/inadequate installation instructions. The improper installation of the initial damper was corrected by a plant modification which was completed on 4/25/85. The root cause of this event appears to be inadequate installation quality control compounded by a failure to evaluate by functionally testing post installation performance of the dampers. On 3/10/86 a functional test program for fire barrier dampers at ANO-2 was initiated. A subsequent fire hazards analysis of ANO-2 demonstrated that the fire barrier under consideration should not have been a technical specification designated fire barrier. No additional supplemental reports are planned. A similar event has been reported in 50-368/86-003. This event posed no threat to the health and safety of the general public.

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

I. Description of Event

A. Plant Status

The unit was operating at 100% power during this event. The event had not adverse impact on unit operation.

B. Component Identification

3 Hour Rated Fire Dampers; EIIS Identifiers = VF-BDMP-A340

These dampers are installed in ventilation ductwork which penetrates 3 hour rated fire barriers. A fusible link on the retainer of the damper melts at a specified temperature allowing the damper to close. This passive actuation provides the ductwork penetrating the fire barrier with a 3 hour fire barrier capability. The dampers used at Arkansas Nuclear One, Unit 2 (ANO-2) were manufactured by American Warming and Ventilating, Inc.

C. Sequence of Events

On 6/21/84 at 1600 hours with the unit operating at 100% power, a technical specification required penetration fire barrier damper failed to completely close upon fusible link removal. Damper inoperability was discovered during an engineering inspection by a site contractor to obtain fusible link rating data for a proposed plant design change and to verify damper operability. A fire watch had previously been posted in the area since 5/4/84 which fulfilled the action requirements of the ANO-2 Technical Specification 3.7.11.a. Testing of the failed damper was performed on 6/22/84. The damper repeatedly failed to close completely both before and after cleaning and inspection of the damper blades and blade tracks. No visible problem could be detected which would cause this type failure. Testing of a redundant damper in the HVAC duct at the penetration was also performed on 6/22/84. The redundant damper also repeatedly failed to close completely during initial testing. During inspection, a metal shaving attached to a pivot section of the damper blades was found and removed. This damper then closed completely during each subsequent trip test. Each damper at the penetration has a three hour fire rating, therefore three hour fire barrier capability was reestablished. A engineering evaluation of the damper failures revealed that several dampers in this area had been installed in a manner that would allow for non-detectable physical binding.

II. Event Cause

A. Event Analysis

The failed dampers are located in an exhaust air HVAC duct which penetrates the wall separating the east DC electrical equipment room and the south switchgear room. At the time of the noted degradation, the penetration fire barrier dampers were technical specification required fire barriers in accordance with the fire hazards analysis for ANO-2 to meet the criteria of Appendix A to the Auxiliary Power Conversion Systems Branch (APCSB) Branch Technical Position 9.5-1. Subsequent to the date of the noted degradation, re-analysis of the ANO fire hazards analysis in accordance with the requirements of Appendix R to 10CFR50 Sections II.G.J and O, no longer classifies this barrier as a technical specification required penetration fire barrier.

B. Root Cause

The failure mechanism for the dampers has apparently existed since installation and acceptance testing of the ventilation system at ANO-2 in 1979. There was no requirement to periodically test these dampers for operability, and no periodic functional testing on these components was performed. The ANO-2 Technical Specification 3/4.7.11 requires a visual inspection of penetration fire barriers once every 18 months. The root cause of this event was inadequate installation quality control.

C. Reportability

This event is reportable based on 10CFR50.73 (a)(2)(i)(B) since operation had occurred which is prohibited by a Technical Specification (TS) Limiting Condition for Operation (LCO) and the Action time allowances had been exceeded. ANO-2 TS 3.7.11 states that all penetration fire barriers shall be functional. The LCO action requirement for a non-functional penetration fire barrier (e.g., fire barrier dampers) is the posting of a continuous fire watch within 1 hour. Since the mechanism which caused the fire barrier damper failures existed since initial operation of ANO-2, these dampers have been technically inoperable since 1979 and TS 3.7.11 has been exceeded. The minimal impact of this event on the health and safety of the general public is substantiated by the re-analysis of fire barriers at ANO-2 for compliance with the requirements of Appendix R to 10CFR50. This re-analysis demonstrated that the fire barrier for which the subject dampers were installed should not be a technical specification fire barrier. This barrier was subsequently changed from its status as a technical specification fire barrier in the ANO-2 fire hazards analysis.

III. Corrective Actions

A. Immediate

After noting the initial failure event on 6/21/84, the site contractor returned to examine and test the failed damper and the redundant damper in the penetration. This activity was completed on 6/22/84. After establishing that both dampers in this penetration could not attain a 3 hour rated configuration (failed to fully actuate) the shift operations supervisor was notified and the posting of a fire watch per TS 3.7.11.a was verified.

B. Subsequent

Based on the failures of dampers in this area, an engineering evaluation of like dampers in this area was initiated. This evaluation revealed that several dampers in this area had been installed in a manner that would allow for non-detectable physical binding. On 3/14/85 work was initiated to remove and reinstall all the dampers in the area (a total of 21 dampers). This activity was completed on 4/25/85. Additionally, a functional testing program has been implemented at ANO-2, in addition to the required TS visual inspection surveillance. This functional testing will be performed on an 18 month frequency. Any additional fire barrier damper deficiencies should be discovered during the performance of this functional test program and will be corrected and reported accordingly. This functional testing was begun on 3/10/86.

C. Future

No future actions are planned.

IV. Additional Information

A. Similar Events

Since the initial reporting of this event, the ANO-2 plant staff has initiated the functional testing of the fire barrier dampers and discovered 2 dampers which could not meet the testing criteria. These failures were reported in 50-368/86-003.

B. Supplemental Information

No supplemental reports to this event are planned, however, the results of the functional testing of the fire barrier dampers will be reported as a supplement to 50-368/86-003. This supplement is expected to be submitted 8/1/86.

ARKANSAS POWER & LIGHT COMPANY
POST OFFICE BOX 551 LITTLE ROCK, ARKANSAS 72203 (501) 371-4000

May 22, 1984

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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. 84-016-01

Gentlemen:

In accordance with 10CFR50.73(a)(2)(i), attached is the subject report concerning fire barrier deficiencies. This is a revision to a previous submittal dated July 23, 1984.

Very truly yours,

J. Ted Enos, Manager
Nuclear Engineering and Licensing

JTE/RJS/sg

Attachment

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