



Arkansas Power & Light Company  
Arkansas Nuclear One  
Route 3, Box 137 G  
Russellville, AR 72801  
Tel 501 964 3100

April 2, 1990

1CAN049001

U. S. Nuclear Regulatory Commission  
Document Control Desk  
Mail Station P1-137  
Washington, D. C. 20555

SUBJECT: Arkansas Nuclear One - Unit 1  
Docket No. 50-313  
License No. DPR-51  
Licensee Event Report No. 50-313/89-049-02

Gentlemen:

In accordance with 10CFR50.73(a)(2)(i)(B), attached is the subject supplemental report concerning improper environmental qualification taping of the internal motor lead connections for the Main Feedwater containment isolation valves. This report is being revised to provide the results of the ANO-1 and ANO-2 component inspections which have been completed.

Very truly yours,

E. C. Ewing  
General Manager,  
Technical Support  
and Assessment

ECE/DM/abw  
Attachment  
cc:

Regional Administrator  
Region IV  
U. S. Nuclear Regulatory Commission  
611 Ryan Plaza Drive, Suite 1000  
Arlington, TX 76011

INPO Records Center  
Suite 1500  
1100 Circle 75 Parkway  
Atlanta, GA 30339-3064

9004130135 900402  
PDR ADDCK 05000313  
S FDC

JE22  
11

An Energy Company

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) Arkansas Nuclear One, Unit One

DOCKET NUMBER (2) PAGE (3)

10151010101 31 31 3101013

TITLE (4) Improper Environmental Qualification Taping of Internal Motor Lead Connections for Main Feedwater  
Containment Isolation Valves

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)
11	21	01	01	01	11	21	01	AND-2	0151010101 31 31 3101013

OPERATING MODE (9) THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5:

N (Check one or more of the following) (11)

POWER LEVEL (10) 101010	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)	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
Carla Miller, Nuclear Safety and Licensing Specialist	Area Code
	51011916141-1311010

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)

Yes (If yes, complete Expected Submission Date) No

Month Day Year

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

On December 20, 1989, Arkansas Nuclear One (ANO) discovered that Okonite T-95 tape had not been used to tape the internal motor lead connections for two Main Feedwater (MFW) containment isolation valves. It was subsequently determined that these valves did not meet environmental qualifications (EQ) and the valves were declared inoperable. The internal motor leads of both valves were immediately taped according to design drawings to bring them into compliance with EQ requirements. Although the potential existed for both MFW isolation valves not to close if they were exposed to a harsh environment, control valves located at the discharge of the MFW pumps would have closed or been available to close to stop the flow of MFW to the steam generators and, thereby, limit the potential for Reactor Coolant System overcooling. Therefore, the safety significance is considered minimal. The motors for the MFW valves are dual voltage type motors with internal motor leads which must be taped for EQ purposes. In October 1988, the valve motor operators for both valves were sent to the vendor to be reworked. When the valves were returned, ANO did not recognize that the internal motor lead connections were taped with only Scotch 33. With the exception of three ANO-1 components, the EQ inspections of the components which were identified have been completed.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
Arkansas Nuclear One, Unit One		Year	Sequential Number	Revision Number	
	0151010101 31 31 31	8 9 --	0 4 5 --	0	21012101013

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

A. Plant Status

At the time of occurrence of this event, Arkansas Nuclear One, Unit 1 (ANO-1) was in a Startup mode of operation. Reactor Coolant System (RCS) [AB] temperature was approximately 450 degrees Fahrenheit and RCS pressure about 2150 psia. A plant startup was in progress following a mid-cycle maintenance outage.

B. Event Description

On December 20, 1989, while performing an inspection of the taping of electrical motor lead connections for environmental qualifications (EQ), AND identified that only Scotch 33 tape, without a first layer wrap of Okonite T-95 tape, had been used to tape the internal motor lead connections for two Main Feedwater (MFW) [SJ] containment isolation valves. The two valves (CV-2680 and CV-2630) are the MFW isolation valves for 'A' and 'B' Steam Generators (SGs) [SG]. The electrical lead connections taped with only Scotch 33 tape do not satisfy EQ requirements. The valves were subsequently declared inoperable. AND determined this condition had existed for approximately fourteen months.

An inspection of the taping configuration of the electrical lead connections was being performed as part of an AND action to remove Scotch 33 tape used in safety related motor operated valves and replace Scotch 33 with Okonite 35 tape. Okonite 35 tape was applied to safety related motor operated valves to enhance existing environmental qualification assumptions.

C. Safety Significance

There are two trains of MFW which supply preheated feedwater to the SGs. Each train has a MFW pump with motor operated control valves located at the discharge of the pumps. The MFW containment isolation valves are located downstream of the MFW pump discharge valves.

Since the internal motor lead connections were not EQ, the potential existed for both MFW isolation valves not to close if they were exposed to a harsh environment. However, control valves located at the discharge of the MFW pumps would have closed or been available to close to stop the flow of MFW to the SGs and, thereby, limit the potential for RCS overcooling. Therefore, the safety significance of this event is considered minimal.

D. Root Cause

In October 1988, the valve motor operators for both MFW valves were sent to a vendor (Quality Control Builders) to be reworked. The motors are dual voltage type motors with internal motor lead connections which must be taped for EQ purposes. The internal motor lead connections were taped with Scotch 33 by the vendor without the use of Okonite T-95 tape on the first wrap prior to shipping the valves to AND. Upon receipt, AND did not recognize that Okonite T-95 was not applied beneath the existing Scotch 33 tape overlay. Prior to sending the MFW valves to the vendor, a review of previous EQ documentation associated with these valves indicated that EQ requirements were satisfied.

E. Basis for Reportability

The ANO-1 Technical Specifications require that both MFW isolation valves be operable. This condition is therefore, reportable pursuant to 10CFR50.73(a)(2)(i)(B), operation prohibited by Technical Specifications. This event is also reportable pursuant to 10CFR50.73(a)(2)(ii)(B), as a condition outside the design basis of the plant. A 10CFR50.72(b)(2)(i) notification to the NRC was made on December 20, 1989.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		Year	Sequential Number	Revision Number	
Arkansas Nuclear One, Unit One	0151010101 31 31 21	81 91 --	01 41 91 --	01 21	013101013

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

## F. Corrective Actions

The internal motor leads of both valves were immediately taped according to design drawings to satisfy EQ requirements. Approximately twenty-seven valve operators which originally had nylon crimped connectors were identified to be inspected for assurance that EQ requirements were satisfied. This inspection was completed on December 21, 1988, with these two valve operators being the only discrepancies identified which did not satisfy EQ requirements. Two additional valves (CV-1272 and CV-3822) were identified with taping discrepancies, however, EQ requirements remained satisfied. Additionally, a review of material tickets, job orders, 1986 Raychem walkdowns and EQ documentation for other components which may have used Scotch 33 tape in conjunction with Okonite T-95 tape was performed. An additional forty components for AND-1 and twenty-two components located in AND-2 were identified for inspection. Fourteen of the forty components identified for inspection on AND-1 are located in the containment building.

The inspections of the identified AND-1 and AND-2 components have been completed with the exception of five AND-2 components. It has been determined that two of these components (CV-1414 and CV-1050), located in the AND-1 containment building, do not need to be inspected. During 1988 (November, 1988) a new actuator was installed on CV-1414. The splices which were in question no longer existed when the new actuator was installed, therefore, it was concluded that there were no EQ concerns related to CV-1414. The valve actuator on CV-1050 is completely sealed to prevent moisture intrusion and has been qualification tested as submersible. The EQ boundary provided by the actuator covers and O-rings for CV-1050 are by design satisfactory, therefore, no EQ concerns exist for CV-1050. An evaluation of two valves (CV-1206 and CV-1301) located outside the containment building, which have not been inspected, has been performed which determined that the testing and inspection of these valves is not desirable when the plant is at power or in a hot shutdown condition. The other component which remains to be inspected is the 'B' Hydrogen Recombiner, located in the AND-1 containment building. The three remaining AND-1 components (CV-1206, CV-1301 and the 'B' Hydrogen Recombiner) will be inspected during the next outage while in cold shutdown.

Of the inspections of the additional forty AND-1 components and twenty-two AND-2 components which have been completed, taping discrepancies were identified on ten AND-1 components and twelve AND-2 components. In each case except one, the taping discrepancy was no Okonite T-95 tape in the 'V' splice (or crotch area of the splice). Although there was no Okonite T-95 tape in the 'V' splice area, the electrical leads were taped together in such a manner that water intrusion was highly unlikely. One AND-1 component was identified with the incorrect tape over the Okonite T-95. It is AND-1's position that each component was operable in the as-found condition.

## G. Additional Information.

There have been no previously reported events associated with EQ taping.

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