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April 5, 1990

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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. 50-368/89-027-00

Gentlemen:

In accordance with 10CFR50.73(a)(2)(i)(B), attached is the subject report concerning loose weld slag found in a containment isolation check valve which rendered the valve inoperable.

Very truly yours,

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

ECE/DM/sgw
Attachment

cc: Regional Administrator
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NRC Form 366
(9-83)U.S. Nuclear Regulatory Commission
Approved OMB No. 3150-0104
Expires: 4/30/92

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Arkansas Nuclear One, Unit Two DOCKET NUMBER (2) PAGE (3)
015010101 3 6 810F013

TITLE (4) Loose Weld Slag Found in Containment Isolation Check Valve Rendering the Valve Inoperable

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)																		
1	0	0	5	8	9	8	9	--	0	2	7	--	0	0	0	4	0	5	9	0	0	5	0	1	0	1	3

OPERATING THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §:

MODE (9) 5 (Check one or more of the following) (11)

POWER	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
LEVEL	20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
(10) 101010	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
Dana Millar, Nuclear Safety and Licensing Specialist	Area Code 5101191641-1311010

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)

Yes (If yes, complete Expected Submission Date)	No	EXPECTED SUBMISSION DATE (15)	Month	Day	Year
1	1				

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

On October 5, 1989, while performing local leak rate testing (LLRT) during a refueling outage (2R7), it was determined that the leakage rate for a containment isolation check valve (2SA-69) in the Service Air (SA) System was in excess of the leakage rate allowed by Technical Specifications. The valve was declared inoperable and a maintenance job order issued to repair or replace the valve as necessary. The maximum pathway leakage rate is considered when calculating total leakage for Type 'B' and Type 'C' valves. The cause of the excessive leakage through 2SA-69 was determined to be loose weld slag found in the valve seat area. It could not be determined how the weld slag was introduced into the valve, although it could have been introduced during a maintenance outage in May 1989. The valve was reassembled and a leakage rate test satisfactorily performed. The penetration is isolated by two valves 2SA-68, a normally closed, locked closed, manual isolation valve and 2SA-69. The result of the last LLRT performed on 2SA-68 indicated zero leakage. With no leakage through 2SA-68, it is reasonable to assume that the actual leakage through the penetration would be minimal and, therefore, there was no safety concern. On March 6, 1990, after a detailed reevaluation of this condition and discussions with engineering personnel, this condition was determined to be reportable pursuant to 10CFR50.73(a)(2)(i)(B).

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
Arkansas Nuclear One, Unit Two		Sequential	Revision		
		Year	Number		Number
	01510101013161818191--	012171--	01	01012101013	

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 Two (ANO-2) was in Mode 5 (Cold Shutdown). Reactor Coolant System (RCS) [AB] pressure was at atmospheric and RCS temperature at approximately 120 degrees Fahrenheit. The seventh refueling outage (2R7) was in progress (September 25, 1989 to November 20, 1989).

B. Event Description

On October 5, 1989, while performing the Local Leak Rate Test (LLRT) on a Service Air (SA) system containment isolation check valve (2SA-69), it was identified that 2SA-69 leaked excessively. Additional testing was performed on 2SA-69 to better quantify the leakage rate. The results of the additional testing indicated that the leakage rate was approximately 21264 absolute cubic centimeters per minute (accm).

Technical Specification 3.6.1.2.b requires that the combined leakage rate for penetrations and valves subject to Type 'B' and Type 'C' tests be less than or equal to 0.6 L (20990 accm for ANO-2). As-found leakage tests for Type 'B' and Type 'C' are calculated using the maximum pathway method. The maximum pathway leakage rate for the penetration (2P43), of which 2SA-69 isolates one side, exceeded the total leakage rate allowed by Technical Specifications. The containment isolation valve (2SA-69) was declared inoperable and a maintenance job order issued to open, clean, inspect, repair or replace the valve, as necessary.

C. Root Cause

The cause of the excessive leakage rate for 2SA-69 was a large quantity of loose weld slag which was found in the valve. It cannot conclusively be determined how the weld slag was introduced into the valve, although it could have been introduced during a maintenance outage in May 1989. (This is the only time the SA penetration, a normally closed penetration, had been opened since the previous refueling outage (2R6) at which time a satisfactory LLRT was performed.) A probable cause of the introduction of the weld slag into the SA system was inadequate cleanliness controls associated with the maintenance activities on the SA system.

D. Corrective Actions

The valve was cleaned and reassembled, and an as-left LLRT was performed resulting in a satisfactory leakage rate of approximately 54.8 accm. The condition found did not indicate any generic problems with the particular valve type, size or application. A review of previous maintenance activities associated with the valve was performed with no indication of how the weld slag could have been introduced into the valve. Since it could not be concluded how the weld slag was introduced into the SA system, ANO management decided that until the next refueling outage (2R8), an LLRT would be performed on 2SA-69 prior to plant heat-up if the valve is opened to supply SA to containment. During 2R8 scheduled to begin in March 1991, a flush of the SA system will be performed to clean out foreign material.

Additionally, a review of the cleanliness controls associated with maintenance activities performed on the SA system has indicated that the controls were inadequate. An administrative procedure which addresses cleanliness control for maintenance activities on fluid systems will be revised to include maintenance activities on air systems. This procedure will be revised by March 1991 consistent with the 2R8 outage schedule.

E. Safety Significance

The only SA penetration into containment has two valves, 2SA-69 and 2SA-68. Both valves are leak tested. 2SA-68 is a manual, normally locked closed (with strict administrative controls) containment isolation valve. The leakage rate on 2SA-68 was verified to be acceptable, with zero leakage. The use of the maximum pathway leakage rate is a conservative method of calculating leakage through individual penetrations. Since there was zero leakage measured through 2SA-68, it is reasonable to assume that the actual leakage through the penetration would be minimal. Although it may appear that the actual leak rate from containment exceeded the allowable Technical Specification values due to the method of calculation (i.e., maximum pathway), Technical Specification allowable values were not exceeded. Therefore, ANO has concluded that this condition is not safety significant.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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Arkansas Nuclear One, Unit Two		Year	Sequential	Revision	
			Number	Number	
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

F. Basis for Reportability

Based upon a detailed investigation of the use of the SA system, it was identified that SA was aligned to the containment building during a maintenance outage in May 1989, which required the opening of 2SA-69. The weld slag could have been introduced into the valve at this time, rendering the valve inoperable. Technical Specification 3.0.4 requires that the Limiting Conditions for Operation be satisfied prior to changing operational modes. Since the maintenance outage in May 1989 operational mode changes have occurred without knowing 2SA-69 was inoperable. This condition was, therefore, determined to be reportable pursuant to 10CFR50.73(a)(2)(i)(B), operation prohibited by Technical Specifications on March 6, 1990.

G. Additional Information

There have been no previously reported events in which foreign material rendered a containment isolation valve inoperable.

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