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Southern Nuclear Operating Company

*the southern electric system*

Dave Morey  
Vice President  
Farley Project

October 16, 1995

Docket No.: 50-348

10 CFR 50.73

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555

Joseph M. Farley Nuclear Plant Unit 1  
Licensee Event Report 95-008-00  
Failure of MSIVs to Close

Ladies and Gentlemen:

Joseph M. Farley Nuclear Plant Licensee Event Report 95-008-00 is being submitted in accordance with 10 CFR 50.73. If you have any questions, please advise.

Respectfully submitted,

*Dave Morey*  
Dave Morey

DPH:maf FLMIS.DOC

Attachment

cc: Mr. S. D. Ebner  
Mr. B. L. Siegel  
Mr. T. M. Ross

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**LICENSEE EVENT REPORT (LER)**

(See reverse for required number of digits/characters for each block)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)  
Joseph M. Farley Nuclear Plant - Unit 1

DOCKET NUMBER (2)  
05000348

PAGE (3)  
1 OF 4

TITLE (4)  
Loop A Main Steam Line Isolation Valves Fail To Close

EVENT DATE (6)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
09	16	95	95	-- 008	-- 00	10	16	95	FACILITY NAME	DOCKET NUMBER
OPERATING MODE (9)			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
3			20.2201(b)		20.2203(a)(2)(v)		X		50.73(a)(2)(i)	
POWER LEVEL (10)			20.2203(a)(1)		20.2203(a)(3)(i)				50.73(a)(2)(ii)	
0			20.2203(a)(2)(i)		20.2203(a)(3)(ii)				50.73(a)(2)(iii)	
			20.2203(a)(2)(ii)		20.2203(a)(4)				50.73(a)(2)(iv)	
			20.2203(a)(2)(iii)		50.36(c)(1)		X		50.73(a)(2)(v)	
			20.2203(a)(2)(iv)		50.36(c)(2)				50.73(a)(2)(vii)	
									OTHER	
									Specify in Abstract below or in NRC Form 366A	

LICENSEE CONTACT FOR THIS LER (12)  
NAME: R.D. Hill, General Manager - Nuclear Plant  
TELEPHONE NUMBER (include Area Code): (334)899-5156

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

SUPPLEMENTAL REPORT EXPECTED (14)  
YES (If yes, complete EXPECTED SUBMISSION DATE): X NO  
EXPECTED SUBMISSION MONTH: DAY: YEAR:

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On September 16, 1995, with unit 1 in mode 3 at approximately 420 degrees F in preparation for a scheduled refueling outage, the instrument air (IA) valves to the loop A main steam line isolation valves (MSIVs) [SB] were apparently inadvertently isolated during the conduct of MSIV IA system leak testing. The apparent inadvertent isolation prevented the venting of IA to the MSIV actuators through the associated MSIV solenoid valves. This prevented the closure of the MSIVs using the main control board (MCB) hand switches and also would have prevented the fulfillment of the automatic safety function needed to mitigate the consequences of an accident. In addition, Unit 1 entered Technical Specification 3.0.3 due to two inoperable MSIVs. During the initial stages of the testing the MSIVs operated properly. Subsequently, at approximately 0939 both loop A MSIVs failed to close when the associated MCB hand switches were placed in the closed position. A root cause investigation concluded that the most probable cause of this event was personnel error. During the test an operator apparently inadvertently misaligned IA to both loop A MSIVs while testing was performed on both loop A MSIVs concurrently. The air supplies to the loop A MSIVs were vented and the MSIVs closed at approximately 1013. The test procedure has been modified to prevent testing of more than one MSIV on a loop at a time in conditions where MSIVs are required to be operable. The operator has been coached on this event.

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

Plant and System Identification

Westinghouse -- Pressurized Water Reactor

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

Description of Event

On September 16, 1995, with unit 1 in mode 3 at approximately 420 degrees F in preparation for a scheduled refueling outage, the instrument air valves to the loop A main steam line isolation valves (MSIVs) [SB] were apparently inadvertently isolated during the conduct of MSIV instrument air system leak testing. The apparent inadvertent isolation prevented the venting of instrument air to the MSIV actuators through the associated MSIV solenoid valves. This prevented the closure of the MSIVs using the main control board (MCB) hand switches and also would have prevented the fulfillment of the automatic safety function needed to mitigate the consequences of an accident. In addition, Unit 1 entered Technical Specification 3.0.3 due to two inoperable MSIVs. This condition existed between the time period of instrument air misalignment and venting the MSIVs closed. This time period was less than one hour. During the initial stages of the testing the MSIVs operated properly. Subsequently, at approximately 0939 both loop A MSIVs failed to close when the associated MCB hand switches were placed in the closed position.

The instrument air leak test evaluates the integrity of a MSIVs instrument air supply system. While the test procedure allowed for individual testing of the MSIVs, testing was performed on both loop A MSIVs concurrently. During the test an operator apparently inadvertently misaligned instrument air to both loop A MSIVs.

Extensive testing and maintenance was conducted on the loop A MSIV instrument air system and solenoid valves as part of the root cause investigation. No equipment failures that would have contributed to this event were evident.

Cause of Event

A root cause investigation concluded that the most probable cause of this event was personnel error in that the operator apparently inadvertently isolated an inappropriate section of the instrument air piping which prevented the solenoid valve from venting air from the actuators associated with the loop A MSIVs.

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

Several factors contributed to this event:

Loop A MSIV testing was performed on both MSIVs in a mode where the MSIVs were required operable.

The operator failed to initial-off performance of procedure steps as the steps were performed. This was contrary to administrative procedures.

Safety Assessment

The health and safety of the public was unaffected by this condition.

Farley Nuclear Plant's design basis assumes functional main steam line isolation in order to mitigate a main steam line break by limiting the steam blowdown to one steam generator. Under the conditions associated with this event a steam generator fault upstream of the loop B or C MSIV's could have resulted in two steam generators blowing down. This postulated accident would have been mitigated by the initial reactor coolant system temperature of 420 degrees F. In addition, a return to power would have been mitigated by the reactor coolant boron concentration of approximately 2072 ppm at the time of this event.

The loop A MSIVs performed properly during power operation and closed as required using the MCB hand switches in preparation for the instrument air system leak test. The loop A MSIVs were in a configuration for less than one hour that would have prevented their closure. In order to estimate the increase in plant risk associated with this condition, a probabilistic safety assessment (PSA) was performed using the probabilistic risk assessment (PRA) model as described in the FNP Individual Plant Examination (IPE). The results of this analysis indicate that the inability to close both MSIVs for one hour during power operation would increase the annual FNP Core Damage Frequency (CDF) by approximately 1 E-9. This is an insignificant increase based on the EPRI PSA Applications Guide.

This event could have had a potential for increased consequences if it had occurred under normal operating conditions. However, the impact on CDF described above bounds the potential increased consequences. In addition, emergency procedures were in place to mitigate the consequences in the event of a design basis event.

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

Corrective Action

The air supplies to the loop A MSIVs were vented and the MSIVs closed properly at approximately 1013.

Extensive testing and maintenance was conducted on the loop A MSIV instrument air system and solenoid valves as part of the root cause investigation. No equipment failures that would have contributed to this event were evident.

The Unit 1 and 2 test procedures have been modified to prevent testing on more than one MSIV on a loop at a time in conditions where MSIVs are required operable.

The operator has been coached on this event and the expectations associated with appropriate procedure performance.

Additional Information

The loop B and C MSIVs remained capable of performing their intended function during this event.

LER 83-039 (Unit 2) was submitted due to the failure of three MSIVs to close as part of a normal shutdown under no flow conditions. Two valves failed due to binding in the valve packing. The remaining valve failed to fully close due to separation of the valve disc from the disc arm.