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June 5, 2006

Docket No.: 50-348

NL-06-1175

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555-0001

Joseph M. Farley Nuclear Plant – Unit 1
Licensee Event Report 2006-002-00
Main Steam Isolation Valve Failure to Close

Ladies and Gentlemen:

Joseph M. Farley Nuclear Plant – Licensee Event Report (LER) No. 2006-002-00 is being submitted in accordance with 10 CFR 50.73(a)(2)(i)(B).

This letter contains no NRC commitments. If you have any questions, please advise.

Sincerely,

A handwritten signature in cursive script that reads "H. L. Sumner, Jr.".

H. L. Sumner, Jr.

HLS/CHM/sdl

Enclosure: Licensee Event Report 2006-002-00 – Unit 1

cc: Southern Nuclear Operating Company
Mr. J. T. Gasser, Executive Vice President
Mr. J. R. Johnson, General Manager – Plant Farley
RTYPE: CFA04.054; LC# 14442

U. S. Nuclear Regulatory Commission
Dr. W. D. Travers, Regional Administrator
Mr. R. E. Martin, NRR Project Manager – Farley
Mr. C. A. Patterson, Senior Resident Inspector – Farley

LICENSEE EVENT REPORT (LER)

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

Estimated burden per response to comply with this mandatory collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME Joseph M. Farley Nuclear Plant - Unit 1	2. DOCKET NUMBER 05000348	3. PAGE 1 OF 3
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4. TITLE
Main Steam Isolation Valve Failure to Close

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
04	08	2006	2006	- 002 -	00	06	05	2006		05000
										05000

9. OPERATING MODE 3	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: (Check all that apply)											
	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)								
10. POWER LEVEL 0	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)								
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)								
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)								
	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)								
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)								
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)								
<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER									
<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A									

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME J. R. Johnson - Nuclear Plant General Manager	TELEPHONE NUMBER (Include Area Code) 334-899-5156
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13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
B	SB	ISV	A585	Yes	D	SB	ISV	A585	Yes

14. SUPPLEMENTAL REPORT EXPECTED <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	15. EXPECTED SUBMISSION DATE MONTH: DAY: YEAR:
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On April 8, 2006, at 0105, with Unit 1 in Mode 3 prior to cooldown for a refueling outage, during Main Steam Isolation Valve (MSIV) and Bypass Valves Cold Shutdown Valves Inservice Test, the Unit 1 downstream MSIV's failed to fully stroke closed. The A valve closed approximately 70%, and valves B and C did not move from the full-open position. On April 8, 2006, at 0700, after some cooldown, the A valve was found 90% closed, and would not move open or closed; the B valve was found 75% open, and was closed by repeated mechanical agitation; the C valve was found full open, and was closed by a single application of mechanical agitation. On April 9, 2006, at 1200, following completion of cooldown, all three valves would stroke both open and closed from the Main Control Room. This event was caused by inadequate preventive maintenance on shaft load-bearing components, improper valve assembly, omission of relevant information in the procedure and turbulence in the downstream valves resulting in a more severe duty condition than in the upstream valves. The shafts and all load-bearing components in contact with the shafts of the downstream valves have been replaced, and the quarterly partial stroke test has been re-established. Preventive maintenance (PM) for replacement of the shafts and load-bearing components in contact with the shafts will be established on Unit 1 and Unit 2 by August 1, 2006. Applicable Operations procedures have been revised. Applicable Maintenance procedures will be revised by August 1, 2006. Unit 2 valves have been partial stroke tested satisfactorily to verify that the stem will move. An engineering review to consider possible design changes to reduce the severity of the service conditions in the downstream valves will be completed by March 15, 2007.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET (2) NUMBER	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Joseph M. Farley Nuclear Plant Unit – 1	05000348	2006	- 002	- 00	2 OF 3

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

Westinghouse -- Pressurized Water Reactor
Energy Industry Identification Codes are identified in the text as [XX]

Description of Event

On April 8, 2006, at 0105, with Unit 1 in Mode 3 prior to cooldown for a refueling outage, during Main Steam [SB] Isolation Valve (MSIV) and Bypass Valves Cold Shutdown Valves Inservice Test, the Unit 1 downstream MSIV's failed to fully stroke closed. The A valve closed approximately 70%, and valves B and C did not move from the open position. On April 8, 2006, at 0700, after some cooldown, the A valve was found 90% closed, and would not move open or closed with mechanical agitation or from the Main Control Room; the B valve was found 75% open, and was closed by repeated mechanical agitation; the C valve was found full open, and was closed by a single application of mechanical agitation. On April 9, 2006, at 1200, following completion of cooldown, all three valves would stroke both open and closed from the Main Control Room.

Cause of Event

Upon disassembly, the A valve shaft was found to have gouges under the packing follower location, and a crack initiated at a disc arm keyway. The B valve shaft was found to have wear marks under the packing follower location and an open circumferential crack that had initiated at a disc arm keyway. The keyway design results in a stress riser in the keyways. The C valve shaft was found to have deposition of packing material graphite bonded to the shaft in the packing region. The shafts and associated load bearing components of all three valves were found to have wear marks.

The shaft load bearing components had no defined criteria for replacement. Accumulation of wear allowed shaft clearances and roughness of components in contact with the shaft to increase over the years. This possibly allowed development of interference between the packing follower and shaft, as other shaft clearances increased while packing clearance remained tight due to packing replacement during each outage.

The thrust bearing on the shaft of downstream MSIV B was installed backwards. This coupled the shaft to the spacer on the opposite-actuator side of the valve disk assembly, causing increased wear rates in the bearing until axial clearances were lost, and thus increased drag resistance to shaft rotation. Relevant information (such as thrust bearing orientation and acceptance criteria for inspection of components subject to wear) was not specified in the procedure.

This event is unique to the downstream valves. The upstream valves are not subjected to high turbulence agitating the valve discs, which causes increased wear of load bearing components and cyclic torsional loads on the shaft. Due to less turbulence agitation, the upstream valves have not experienced the high-cycle fatigue that the downstream valves have experienced.

Safety Assessment

The safety and health of the public were unaffected by this event.

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Joseph M. Farley Nuclear Plant Unit – 1	05000348	2006	- 002	- 00	3 OF 3

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

The upstream valves were not affected by this event. Therefore, at least one train of Main Steam Line Isolation remained operable throughout this event. This event does not represent a Safety System Functional Failure.

Following cooldown, all three MSIV's stroked fully open and closed from the Main Control Room. All tests were conducted on the downstream valves without assistance of steam flow. It is the engineering judgment of the plant and the valve manufacturer that even though there may have been some binding in the full open position, had the valves been called upon to close under accident conditions with choke flow, they would have closed in the event of a steamline break downstream of the MSIV's.

The Unit 2 valves are operable at this time. The downstream Unit 2 MSIV's (farthest from containment) were inspected during the last Unit 2 outage, including penetrant testing. No cracks were identified in the shafts. The MSIV's were reassembled and satisfactorily tested and additionally were stroked in Hot Standby conditions. All of the Unit 2 MSIV's were partial stroke tested on April 24, 2006 and all stroked satisfactorily. In the event that a closure of the valves was necessary, movement into the steam flowpath would provide additional motive force to close the valves to assist the mechanical closure mechanisms.

Corrective Action

The Maintenance procedure for MSIV overhaul will be revised by August 1, 2006. The Operations MSIV cold shutdown surveillance test procedure (STP) has been revised.

The quarterly partial stroke test procedure has been re-established for Units 1 and 2. The test cylinder used at Farley Nuclear Plant during partial stroke testing does not allow the disc to enter the flow stream, and therefore does not present the risks associated with partial stroke testing that the industry is currently experiencing.

All load-bearing components in contact with the shaft have been replaced on Unit 1 downstream valves including new shafts with radius design keyways.

Preventive maintenance (PM) for replacement of the shafts and load-bearing components in contact with the shafts will be established on Unit 1 and Unit 2 by August 1, 2006

Both upstream and downstream Unit 1 valves have been successfully tested at cold and hot shutdown conditions.

An engineering review to consider possible design changes to reduce the severity of the service conditions in the downstream valves will be completed by March 15, 2007.

Additional Information

The following LER's have been submitted in the past two years on Technical Specification violations:

LER 2005-001-00 Unit 1 Technical Specification 3.3.2.C Violation due to Solid State Protection System Card Failure Troubleshooting

LER 2005-002-00 Unit 1 Technical Specification 3.8.1 Violation due to 1F Bus Synchroscope Failure