

J. R. Johnson  
Vice President – Farley

Southern Nuclear  
Operating Company, Inc.  
Post Office Drawer 470  
Ashford, Alabama 36312-0470

Tel 334.814.4511  
Fax 334.814.4728



*Energy to Serve Your World™*

May 26, 2009

Docket Nos.: 50-348  
50-364

NL-09-0772

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

Joseph M. Farley Nuclear Plant – Units 1 and 2  
Licensee Event Report 2009-002-00  
Turbine Driven AFW Pump Inoperable Due to Internal Flooding Concerns

Ladies and Gentlemen:

In accordance with the requirements of 10 CFR 50.73(a)(2)(i)(B), 10 CFR 50.73(a)(2)(ii)(B), and 10 CFR 50.73(a)(2)(v)(D), Southern Nuclear Operating Company (SNC) is submitting the enclosed Licensee Event Report.

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

Sincerely,

A handwritten signature in black ink that reads "J. R. Johnson". The signature is fluid and cursive, with the first letters of each name being capitalized and prominent.

J. R. Johnson  
Vice President – Farley

JRJ/CHM

Enclosure: Units 1 and 2 Licensee Event Report 2009-002-00

U. S. Nuclear Regulatory Commission

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cc: Southern Nuclear Operating Company  
Mr. J. T. Gasser, Executive Vice President  
Mr. J. R. Johnson, Vice President – Farley  
Mr. P. M. Marino, Vice President – Engineering  
RTYPE: CFA04.054

U. S. Nuclear Regulatory Commission  
Mr. L. A. Reyes, Regional Administrator  
Mr. R. E. Martin, NRR Project Manager – Farley  
Mr. E. L. Crowe, Senior Resident Inspector – Farley

**Joseph M. Farley Nuclear Plant – Units 1 and 2  
Licensee Event Report 2009-002-00  
Turbine Driven AFW Pump Inoperable Due to Internal Flooding Concerns**

**Enclosure**

**Units 1 and 2 Licensee Event Report 2009-002-00**

**LICENSEE EVENT REPORT (LER)**

Estimated burden per response to comply with this mandatory collection request: 80 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 <b>Joseph M. Farley Nuclear Plant – Unit 1</b>	2. DOCKET NUMBER <b>05000 348</b>	3. PAGE <b>1 of 3</b>
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4. TITLE  
**Turbine Driven AFW Pump Inoperable Due to Internal Flooding Concerns**

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
<b>03</b>	<b>27</b>	<b>2009</b>	<b>2009</b>	<b>- 002 -</b>	<b>00</b>	<b>05</b>	<b>26</b>	<b>2009</b>	<b>Farley Nuclear Plant Unit 2</b>	<b>05000 364</b>
									FACILITY NAME	DOCKET NUMBER
										<b>05000</b>

9. OPERATING MODE  <b>1</b>	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  <b>96</b>	<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 checked="" 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 checked="" type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A								

12. LICENSEE CONTACT FOR THIS LER

NAME <b>J. R. Johnson – Vice President</b>	TELEPHONE NUMBER (Include Area Code) <b>334 899-5156</b>
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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

14. SUPPLEMENTAL REPORT EXPECTED	15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO			

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

On March 27, 2009 SNC determined that the calculation for internal flooding did not account for a floor drain located in a pipe chase that is exposed to the Main Steam Valve Room (MSVR). This open floor drain could allow water introduced into the MSVR during a Feed Water Line Break (FWLB), to reach the Lower Equipment Room. The Lower Equipment Room houses the Turbine Driven Auxiliary Feed Water (TDAFW) Pump [BA] and associated Uninterruptible Power Supply (UPS). Review of the flooding calculations was initiated to determine the projected level of water that could be expected in the Lower Equipment Room due to a FWLB in the MSVR. As a conservative measure, in the early morning hours of March 28, 2009, the floor drains in the pipe chase for Units 1 and 2 were plugged, returning both Units to the design configuration consistent with the internal flooding calculation.

The review of the design calculation for internal flooding determined that during a FWLB in the MSVR, water was not assumed to reach the Lower Equipment Room and rise to a level to negatively affect equipment. SNC determined that during a FWLB in the MSVR with the drain line unplugged, the water could reach a level in the Lower Equipment Room that could have made the TDAFW UPS inoperable thus rendering the TDAFW Pump inoperable. Current design for a FWLB event requires two of the three AFW pumps to meet the AFW flow demand. With the assumed failure of the TDAFW Pump at the initiation of a FWLB in the MSVR, the single failure criteria could not be met. With the floor drains now plugged the TDAFW Pump will not be negatively affected by a FWLB in the MSVR.

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE	
Joseph M. Farley Nuclear Plant Unit – 1	05000 348	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2	of
		2009	- 002	- 00		

**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 March 27, 2009 @ approximately 18:00 with Unit 1 in Mode 1 at 96 % power and Unit 2 in Mode 3 at 0 % power, SNC determined that the calculation for internal flooding did not account for a floor drain located in a pipe chase that is exposed to the Main Steam Valve Room (MSVR). This condition existed for Units 1 and 2. This open floor drain could allow water introduced into the MSVR during a Feed Water Line Break (FWLB), to reach the Lower Equipment Room. The Lower Equipment Room houses the Turbine Driven Auxiliary Feed Water (TDAFW) Pump [BA] and associated Uninterruptible Power Supply (UPS). Review of the flooding calculations was initiated to determine the projected level of water that could be expected in the Lower Equipment Room due to a FWLB in the MSVR. As a conservative measure, in the early morning hours of March 28, 2009, the floor drains in the pipe chase for Units 1 and Unit 2 were plugged, returning both Units to the design configuration consistent with the internal flooding calculation.

The review of the design calculation for internal flooding determined that during a FWLB in the MSVR, water was not assumed to reach the Lower Equipment Room and rise to a level to negatively affect equipment. An engineering evaluation determined that during a FWLB in the MSVR with the drain line unplugged, the water could reach a level in the Lower Equipment Room that could have made the TDAFW UPS inoperable thus rendering the TDAFW Pump inoperable. Current design for a FWLB event requires two of the three AFW pumps to meet the AFW flow demand. With the assumed failure of the TDAFW Pump at the initiation of a FWLB in the MSVR, the single failure criteria could not be met. With the floor drains now plugged the TDAFW Pump will not be negatively affected by a FWLB in the MSVR.

**Cause of Event**

The open drain path from the MSVR to the Lower Equipment Room was an oversight by the design organization that prepared the internal flooding calculation.

**Safety Assessment**

This event had no adverse effect on the safety and health of the public.

The AFW System automatically supplies feedwater to the steam generators to remove decay heat from the Reactor Coolant System upon the loss of normal feedwater supply. The turbine driven and motor driven AFW pumps take suction through separate and independent suction lines (one for the turbine driven pump and one shared by both motor-driven pumps) from the condensate storage tank (CST) and pump to the steam generator secondary side via separate and independent lines up to the common connection to the main feedwater (MFW) piping to each steam generator outside containment.

**LICENSEE EVENT REPORT (LER)  
CONTINUATION SHEET**

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

The AFW System consists of two motor driven AFW Pumps and one steam turbine driven pump configured into three trains. Each motor driven AFW Pump is powered from an independent Class 1E power supply and feeds all steam generators through a common header. The steam turbine driven AFW pump receives steam from two main steam lines upstream of the main steam isolation valves. The turbine driven AFW pump supplies a common header capable of feeding all steam generators. Thus, the requirement for diversity in motive power sources for the AFW System is met.

The limiting Design Basis Accidents (DBAs) and transients for the AFW System are Feedwater Line Break (FWLB), Main Steam Line Break (MSLB), and Loss of Main Feedwater. A FWLB in the MSVR requires two of the three AFW pumps to meet the AFW flow demands. This is also the DBA that puts the most water in the MSVR.

With the drain from the MSVR to the Lower Equipment Room affecting the TDAFW Pump and assuming a single active failure (failure of a motor-driven AFW Pump), the AFW system could have challenged the required AFW flow for a FWLB event. This condition has been present since original design and construction of both Farley Units. In the past for both Units 1 and 2, equipment outages have occurred where a motor-driven AFW Pump was out of service. During these equipment outages, if a FWLB had occurred, FNP could have challenged the design requirements for AFW system. The event was evaluated using the FNP Probabilistic Risk Assessment (PRA) model and shown to be of very low safety significance. In the operating history of FNP, neither unit has experienced a FWLB. Therefore, the safety and health of the public was not adversely affected by the failure to isolate the drain path from the MSVR to the Lower Equipment Room.

**Corrective Action**

SNC installed a Thaxton plug in each floor drain thus returning both Units to the design configuration consistent with the internal flooding calculation.

Plant procedures have been revised to show that the affected drains are required to be plugged.

A further review of the plant internal flooding calculation is being performed to ensure that the calculation properly reflects the floor drains as they are configured per plant procedures. Any problems identified during this review will be tracked and corrected under the site corrective action program.

**Additional Information**

Previous Similar Events

LER 2008-002-00      Unit 1 TS 3.0.3 Entry Due to Inoperability of Residual Heat Removal System