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Docket Nos.: 50-348

NL-10-1547

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

Joseph M. Farley Nuclear Plant – Unit 1  
Licensee Event Report 2010-002-01  
Two Auxiliary Feedwater Pumps Inoperable

Ladies and Gentlemen:

In accordance with the requirements of 10 CFR 50.73(a)(2)(v)(D), Southern Nuclear Operating Company (SNC) is submitting the enclosed Licensee Event Report Revision. This revision provides additional information received by SNC since the report was initially submitted on April 2, 2010.

This letter contains no NRC commitments. If you have any questions, please contact Mr. Doug McKinney at (205) 992-5982.

Sincerely,

A handwritten signature in black ink, appearing to read "J. R. Johnson", with a long, sweeping horizontal line extending to the right.

J. R. Johnson  
Vice President – Farley

JRJ/WDO/EGA

Enclosure: Unit 1 Licensee Event Report 2010-002-01

cc: Southern Nuclear Operating Company  
Mr. J. T. Gasser, Executive Vice President  
Mr. J. R. Johnson, Vice President – Farley  
Ms. 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  
Mr. P. Boyle, NRR Project Manager

**Joseph M. Farley Nuclear Plant – Unit 1  
Licensee Event Report 2010-002-01  
Two Auxiliary Feedwater Pumps Inoperable**

**Enclosure**

**Unit 1 Licensee Event Report 2010-002-01**

## 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 4</b>			
4. TITLE <b>Two Auxiliary Feedwater Pumps Inoperable</b>										
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>02</b>	<b>02</b>	<b>2010</b>	<b>2010</b>	<b>- 002 -</b>	<b>01</b>	<b>08</b>	<b>20</b>	<b>2010</b>		<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)							
10. POWER LEVEL <b>100 %</b>			<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)	
			<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)		OTHER Specify in Abstract below or in NRC Form 366A		
<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"/> 20.2203(a)(2)(vi)		<input type="checkbox"/> 50.73(a)(2)(i)(B)		<input checked="" type="checkbox"/> 50.73(a)(2)(v)(D)						
12. LICENSEE CONTACT FOR THIS LER										
NAME <b>J. R. Johnson – Vice President</b>									TELEPHONE NUMBER (Include Area Code) <b>334 899-5156</b>	
13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT										
CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	
<b>B</b>	<b>BA</b>	<b>UJX</b>	<b>D150</b>	<b>Y</b>						
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)										
<p>On February 2, 2010 at 1615, the Unit 1 Turbine Driven Auxiliary Feedwater (TDAFW) Pump was declared inoperable due to a high temperature identified on an electrical cable in the TDAFW Uninterruptible Power Supply (UPS) [UA]. The 1B Emergency Diesel Generator (EDG) had previously been removed from service for scheduled maintenance. As required by Technical Specification (TS) 3.8.1, "AC Sources – Operating," Required Action Statement, the Unit 1 B-Train Motor Driven Auxiliary Feedwater (MDAFW) Pump was declared inoperable at 2015 on February 2, 2010 due to the combination of its inoperable emergency power supply and inoperable redundant equipment. This resulted in two of three trains of Auxiliary Feed Water (AFW) being inoperable. Because two out of the three trains of AFW are required to meet flow requirements for limiting design basis accidents (DBA), this represents a condition that could have prevented the fulfillment of a safety function.</p> <p>Repairs to the electrical cable were immediately initiated. At 2216 on February 2, 2010 the Unit 1 TDAFW and 1B MDAFW Pumps were returned to operable status restoring the safety function. Thermography scan of Unit 2 UPS was completed with no indications of adverse wiring connections.</p> <p>Further analysis of the UPS cable high temperature indicates that the TDAFW UPS function would not have been adversely affected. Reporting is still necessary because repair activities removed the TDAFW UPS from service rendering two of three AFW trains inoperable for approximately 26 minutes.</p>										

LICENSEE EVENT REPORT (LER)  
CONTINUATION SHEET

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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 February 2, 2010 at 1615, the Unit 1 Turbine Driven Auxiliary Feedwater (TDAFW) Pump was declared inoperable due to a high temperature identified on an electrical cable in the TDAFW Uninterruptible Power Supply (UPS) [UA]. The 1B Emergency Diesel Generator (EDG) had previously been removed from service for scheduled maintenance. As required by Technical Specification (TS) 3.8.1, "AC Sources – Operating," Required Action Statement, the Unit 1 B-Train Motor Driven Auxiliary Feedwater (MDAFW) Pump was declared inoperable at 2150 on February 2, 2010 due to the combination of its inoperable emergency power supply and inoperable redundant equipment. This resulted in two of three trains of Auxiliary Feed Water (AFW) being inoperable. Because two out of the three trains of AFW are required to meet flow requirements for limiting design basis accidents (DBA), this represents a condition that could have prevented the fulfillment of a safety function.

Repairs to the electrical cable were immediately initiated. At 2216 on February 2, 2010, the Unit 1 TDAFW and 1B MDAFW Pumps were returned to operable status restoring the safety function.

Further analysis of the UPS cable high temperature indicates that the TDAFW UPS function would not have been adversely affected and was therefore operable until removed from service for repairs. Based on this analysis the time of lost safety function was reduced as indicated below:

- TDAFW UPS secured for repairs at 1750 on February 2, 2010
- B-Train MDAFW pump would have been inoperable at 2150 on February 2, 2010
- TDAFW and 1B MDAFW pumps were returned to operable status at 2216 on February 2, 2010

Reporting is still necessary because repair activities removed the TDAFW UPS from service rendering two of three AFW trains inoperable for approximately 26 minutes.

**Cause of Event**

Evaluation of the crimped connection revealed an inadequate crimp at the connection of the lug to the end of the wire. This inadequate crimp compression did not allow the lug and wire to fasten at the proper compression to create the lowest resistance possible. This was discovered when a routine preventive maintenance (PM) thermography scan of plant equipment was scheduled during the planned outage period for EDG 1B. During this routine PM, a high temperature spot was identified in the Unit 1 TDAFW UPS at one connection.

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U.S. NUCLEAR REGULATORY COMMISSION

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

**Safety Assessment**

The Farley onsite standby power source is provided from four EDGs (1-2A, 1B, 2B, and 1C). The continuous service rating of 1C EDG is 2,850 kW and 4,075 kW for EDGs 1-2A, 1B, and 2B. EDG 1-2A and 1-C are A-Train and EDGs 1B and 2B are B-Train. Farley also has a fifth diesel generator (2C) that serves as a station blackout diesel which can be manually aligned to supply B-Train power to either unit and power Loss of Site Power (LOSP) loads. The diesel generator 2C can provide backup power to the buses supplied by 1B EDG. Procedures are in place and operators are trained on starting the 2C diesel generator for alignment to the B-Train emergency buses.

The AFW System consists of two motor driven AFW pumps and one steam turbine driven pump configured into three trains. The pumps are equipped with recirculation lines to prevent pump operation against a closed system. 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 via Direct Current (DC) solenoid air operated control valves actuated by the Engineered Safety Feature Actuation System (ESFAS). Thus, the requirement for diversity in motive power sources for the AFW System is met. Two of the three AFW pumps are required to ensure the flow demand for the most limiting DBAs and transients is satisfied.

During the short period of time the TDAFW Pump and the 1B MDAFW Pump were inoperable no work was performed on the A-Train Emergency Core Cooling System (ECCS) or the class 1E electrical systems that could have threatened the A-Train equipment. No adverse weather conditions existed that threatened FNP's offsite power systems. No events occurred to adversely affect the operations of Unit 1 during this short period of time. At no point was the safety and health of the public challenged. The B-Train MDAFW Pump was available at all times. Therefore, the safety and health of the public was not adversely affected during the limited time the TDAFW and B-Train AFW pumps were declared inoperable.

**Corrective Action**

The heat affected wire and lug were replaced. The Unit 1 TDAFW Pump was returned to operable status at 2216 on February 2, 2010.

Thermography scan of Unit 2 TDAFW UPS was completed with no indications of adverse wiring connections being noted.

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

**Additional Information**

**Similar Events:**

LER 2009-002-00	May 26, 2009	Turbine Driven AFW Pump Inoperable Due to Internal Flooding Concerns
LER 2008-002-00	June 11, 2008	TS 3.0.3 Entry Due to Inoperability of Residual Heat Removal System
LER 2008-003-00	September 15, 2008	Emergency Diesel Generator 1-2A Lube Oil Heat Exchanger Leak