

J. R. Johnson  
Vice President – Farley

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Docket Nos.: 50-348

NL-08-1850

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

Joseph M. Farley Nuclear Plant – Unit 1  
Licensee Event Report 2008-004-00  
Reactor Trip Due to Loss of RCP Breaker Position

Ladies and Gentlemen:

In accordance with the requirements of 10 CFR 50.73(a)(2)(iv)(A), 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: Unit 1 Licensee Event Report 2008-004-00

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cc: Southern Nuclear Operating Company  
Mr. J. T. Gasser, Executive Vice President  
Mr. J. R. Johnson, Vice President – Farley  
Mr. D. H. Jones, Vice President – Engineering  
RTYPE: CFA04.054; LC # 14869

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 – Unit 1  
Licensee Event Report 2008-004-00  
Reactor Trip Due to Loss of RCP Breaker Position**

**Enclosure**

**Unit 1 Licensee Event Report 2008-004-00**

**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  
**Reactor Trip Due to Loss of RCP Breaker Position**

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
11	19	2008	2008	- 004 -	00	01	07	2009		05000
									FACILITY NAME	DOCKET NUMBER
										05000

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 checked="" 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 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	
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
A									

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

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

On November 19, 2008 at approximately 04:25, Farley Unit 1 was operating at 100 % power. Due to a gradual drop in 4160 v safety related bus voltage over the last several hours from grid conditions, Farley contacted Alabama Power - Alabama Control Center (ACC) to discuss removing the shunt reactor from service in the Farley High Voltage Switch Yard (HVSY) to raise the 230 kv grid voltage. After receiving the request, the ACC operator used an air-break disconnect switch to isolate the shunt reactor, instead of using the breakers normally used for this purpose. Opening the disconnect switch which is not designed to break load, caused a significant electrical arc and phase to phase fault. The transmission protection system tripped the appropriate devices and cleared the fault in approximately 3 cycles. However, the instantaneous HVSY voltage drop resulted in loss of breaker position indication for the 1B Reactor Coolant Pump (RCP) [AB] which initiated an automatic Solid State Protection System (SSPS) [JC] reactor trip. Flow to the reactor core was never lost. The reactor tripped without complications and all safety systems performed normally.

The switching control screens for ACC have been updated to alert the ACC operator of the requirement to isolate the shunt reactor prior to operating the air-break disconnect and the requirement to use switching orders for operations at the Farley HVSY. Farley Operations shift personnel and ACC personnel have been briefed of the event.

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

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 3
		2008	- 004	- 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 November 19, 2008 at approximately 04:25, Farley Unit 1 was operating at 100 % power. Due to a gradual drop in 4160 v safety related bus voltage over the last several hours from grid conditions, Farley contacted Alabama Power - Alabama Control Center (ACC) to discuss removing the shunt reactor from service in the Farley High Voltage Switch Yard (HVSY) to raise the 230 kv grid voltage. After receiving the request, the ACC operator used an air-break disconnect switch to isolate the shunt reactor, instead of using the breakers normally used for this purpose. Opening the disconnect switch which is not designed to break load, caused a significant electrical arc and phase to phase fault. The transmission protection system tripped the appropriate devices and cleared the fault in approximately 3 cycles. However, the instantaneous HVSY voltage drop resulted in loss of breaker position indication for the 1B Reactor Coolant Pump (RCP) [AB] which initiated an automatic Solid State Protection System (SSPS) [JC] reactor trip. Flow to the reactor core was never lost. The reactor tripped without complications and all safety systems performed normally. Unit 1 returned to power operation on November 20, 2008 at 10:33.

**Cause of Event**

The event was caused when the air-break disconnect switch was opened while still under load. The ACC operator utilized a control display that was inadequate to perform the requested operation. The man-machine interface, together with the ACC operator's experience and training were insufficient to prevent the inappropriate action by the operator.

The RCP Breaker Position Reactor Trip relays are powered from one of two field supplied sources. One power source is the safety related inverters which are powered by the Class 1E Auxiliary Building Batteries, Battery Chargers or AC constant voltage source transformer. The second power source is from a separate AC constant voltage source transformer. Each AC constant voltage source transformer is powered from a Class 1E AC bus. Alignment to either power source is acceptable per plant design and procedures. At the time of the trip, the RCP Breaker Position Reactor Trip relays were aligned to the AC constant voltage source transformers rather than the safety related inverters.

Review of the event indicates that the reactor trip would not have occurred from the close-in transmission fault, had the RCP Breaker Position relay power supply been aligned to the inverters instead of the AC constant voltage source transformers.

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

**Safety Assessment**

This event had no adverse effect on the safety and health of the public. Reactor Coolant flow through the reactor core was never lost. All safety systems functioned per design and the unit was placed in hot standby.

**Corrective Action**

The switching control screens for ACC have been updated to alert the ACC operator of the requirement to isolate the shunt reactor prior to operating the air-break disconnect and the requirement to use switching orders for operations at the Farley HVSY. Farley Operations shift personnel and ACC personnel have been briefed of the event.

The RCP Breaker Position Reactor Trip relay power supplies have been aligned to the inverters for all RCPs on both Unit 1 and Unit 2.

Operation Experience (OE) on the event has been issued both internally to all Southern Nuclear sites and externally to the nuclear industry.

**Additional Information**

Previous Similar Events

- LER 2007-001-00      Unit 2 Reactor Trip during Unit 1 Main Generator Differential Lockout Relay Testing
- LER 2003-001-00      Reactor Trip Due to Loss of Power to Reactor Coolant Pump Breaker Position Indication