

**L. M. Stinson (Mike)**  
Vice President

**Southern Nuclear  
Operating Company, Inc.**  
40 Inverness Center Parkway  
Post Office Box 1295  
Birmingham, Alabama 35201

Tel 205.992.5181  
Fax 205.992.0341



*Energy to Serve Your World<sup>SM</sup>*

NL-05-2318

January 3, 2006

Docket No.: 50-348

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

Joseph M. Farley Nuclear Plant – Unit 1  
Licensee Event Report 2005-002-00  
Technical Specification 3.8.1 Violation due to IF Bus Synchroscope Failure

Ladies and Gentlemen:

Joseph M. Farley Nuclear Plant Unit 1 Licensee Event Report (LER) No. 2005-002-00 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 black ink, appearing to read "L. M. Stinson".

L. M. Stinson

LMS/JLS/sdl

Enclosure: Licensee Event Report 2005-002-00

cc: Southern Nuclear Operating Company  
Mr. J. T. Gasser, Executive Vice President  
Mr. J. R. Johnson, General Manager – Plant Farley  
RTYPE: CFA04.054; LC# 14372

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.

<b>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
--	--------------------------------------	--------------------------

**4. TITLE**  
Technical Specification 3.8.1 Violation due to 1F Bus Synchroscope Failure

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	11	2005	2005	- 002 -	00	01	03	2006		05000
									FACILITY NAME	DOCKET NUMBER
										05000

<b>9. OPERATING MODE</b>  1	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§:</b> (Check all that apply)							
<b>10. POWER LEVEL</b>  100	<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)					
<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, General Manager Nuclear Plant	TELEPHONE NUMBER (Include Area Code) 334-899-5156
---	--

**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
X	EK	SEL	G291	Yes					

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

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

On November 14, 2005, with the unit operating at 100% power, it was determined that Unit 1 had operated in a condition prohibited by Technical Specification (TS) 3.8.1 from 1149 on November 11, 2005, until 1647 on November 14, 2005, in that an unrecognized failure of the 1F (Train A Engineered Safety Features 4kv bus) synchroscope existed which rendered the 1-2A (Train A) Emergency Diesel Generator (EDG) inoperable. Troubleshooting of a failed 4kv bus voltmeter determined that the voltage indication was lost due to blown fuses that also disabled the bus synchroscope, resulting in TS 3.8.1 required action B.1 not being met. The synchroscope is required per TS Surveillance Requirement (SR) 3.8.14 for the ability to synchronize the 1-2A EDG to an offsite source following power restoration after an LOSP. The ability of the EDG to start and load in response to an LOSP was unaffected by this failure. The 1-2A EDG was declared inoperable for Unit 1 only, per TS 3.8.1 on November 14, 2005 at 1647, and returned to service at 2200 following fuse replacement.

The synchroscope failure event was caused by a short in a degraded voltmeter phase selector switch. The operation in a condition prohibited by TS was caused by cognitive personnel error and knowledge deficiency in that it was unclear to the operating crew that loss of the voltmeter indicated that the synchroscope might also be inoperable. The switch has been tagged to prevent use pending switch replacement. Guidance on actions to take based on loss of certain unique Emergency Power Board indications has been made.

**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	05000-348	2005	- 002	- 00	2 OF 4

**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 11, 2005 at 1149, operators were taking routine bus voltage readings. When the voltmeter selector switch was operated, the voltmeter went blank. It was determined that an LCO existed with respect to TS Table 3.3.5-1 Function 3 for loss of 4kv bus degraded grid alarm capability, and the Required Action for this condition was met. It was not recognized at that time that the synchroscope for the 1F (Unit 1 Train A Engineered Safety Features or ESF) 4kv bus [EK] was also affected. Therefore TS 3.8.1 Required Action B.1 to verify operability of offsite power sources per Surveillance Requirement (SR) 3.8.1.1, was not met at this time.

During troubleshooting of the voltmeter on November 14, 2005 it was determined that the voltmeter was failed due to blown fuses, and that the blown fuses also disabled the synchroscope. The synchroscope is required per TS Surveillance Requirement (SR) 3.8.14 for the ability to synchronize the 1-2A Train A Emergency Diesel Generator (EDG) to an offsite source following power restoration after an LOSP. The 1-2A EDG was declared inoperable for Unit 1 only, per TS 3.8.1 on November 14, 2005 at 1647. Required actions per TS 3.8.1.B, notably to verify operability of offsite power sources per Surveillance Requirement (SR) 3.8.1.1, were then met.

The fuses were replaced restoring power to the voltmeter and the synchroscope. The 1-2A EDG was declared operable on November 14, 2005 at 2200.

The voltmeter selector switch was caution tagged not to operate the switch until troubleshooting of the cause of the blown fuses could be completed and corrected.

The voltmeter selector switch has been replaced.

Cause of Event

The failed voltmeter and synchroscope were caused by fuses blown by a short in a degraded voltmeter phase selector switch. When changing switch positions, momentary simultaneous contact of two phases occurred, resulting in a short that blew the fuses in the two phases.

The operation in a condition prohibited by TS was caused by cognitive personnel error and knowledge deficiency in that it was unclear to the operating crew that loss of the voltmeter indicated that the synchroscope might also be inoperable. In this case the only apparent loss was the bus voltmeter. Loss of the synchroscope, which is not normally in use, was not apparent to the operators.

**LICENSEE EVENT REPORT (LER)**

FACILITY NAME (1)	DOCKET (2) NUMBER	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		OF	
Joseph M. Farley Nuclear Plant Unit - 1	05000-348	2005	- 002	- 00	3	OF	4

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

Safety Assessment

The ability of the 1-2A EDG to start, load, and supply ESF loads in a Loss of Site Power (LOSP) event was unaffected by this event. The only effect was loss of the ability to synchronize the EDG to an available offsite source following power restoration after an LOSP. This is a manual action with no time constraints. The loss of the synchroscope was repaired well within the 7 day mission time of the EDG and the function restored.

Unit 1 emergency power feeds from other EDGs were unaffected by this event. The 1-2A EDG feed to Unit 2 was unaffected by this event.

Since the B Train ESF power supply was unaffected by this event, it does not represent a Safety System Functional Failure.

Corrective Action

The fuses were replaced restoring power to the voltmeter and the synchroscope. The 1-2A EDG was declared operable on November 14, 2005 at 2200.

The voltmeter selector switch was tagged to prevent operation pending switch repair or replacement.

The voltmeter selector switch has been replaced.

A night order was issued to Operations shift crews emphasizing the significance of loss of indication and the standard for investigation of loss of power available indications.

Guidance on actions to take based on loss of certain unique Emergency Power Board indications has been made.

**LICENSEE EVENT REPORT (LER)**

FACILITY NAME (1)	DOCKET (2) NUMBER	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		OF	
Joseph M. Farley Nuclear Plant Unit - 1	05000-348	2005	- 002	- 00	4	OF	4

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

Additional Information

The following LERs 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 2004-001-00 Unit 2 Technical Specification 3.7.8 Violation due to Operation with One Train of Service Water Inoperable

LER 2004-002-00 Unit 2 Plant Entered Mode 3 with One Train of Component Cooling Water Inoperable

LER 2004-003-00 Technical Specification 3.0.4 Violation Due to Turbine Driven Auxiliary Feedwater Pump Inoperable