

Thomas A. Lynch
Vice President - Farley

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May 31, 2012

Docket No.: 50-348

NL-12-0906

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

Joseph M. Farley Nuclear Plant – Unit 1
Licensee Event Report 2012-004-00
Unplanned B Train LOSP during Switchyard Breaker Testing

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 contact Doug McKinney at (205) 992-5982.

Sincerely,

A handwritten signature in cursive script, appearing to read "Thymel", written in black ink.

T. A. Lynch
Vice President – Farley

TALWDO

Enclosure: Unit 1 Licensee Event Report 2012-004-00

U. S. Nuclear Regulatory Commission
NL-12-0906
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cc: Southern Nuclear Operating Company
Mr. S. E. Kuczynski, Chairman, President & CEO
Mr. D. G. Bost, Executive Vice President & Chief Nuclear Officer
Mr. B. L. Ivey, Vice President – Regulatory Affairs
Mr. B. J. Adams, Vice President – Fleet Operations
Mr. M. J. Ajluni, Director – Nuclear Licensing
RTYPE: CFA04.054

U. S. Nuclear Regulatory Commission
Mr. V. M. McCree, 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 2012-004-00
Unplanned B Train LOSP during Switchyard Breaker Testing**

Enclosure

Unit 1 Licensee Event Report 2012-004-00

NRC FORM 366 (10-2010)		U.S. NUCLEAR REGULATORY COMMISSION		APPROVED BY OMB: NO. 3150-0104 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 FOIA/Privacy Section (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by Internet e-mail to infocollects.resource@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.		EXPIRES: 10/31/2013									
<h2 style="margin: 0;">LICENSEE EVENT REPORT (LER)</h2>															
1. FACILITY NAME Joseph M. Farley Nuclear Plant, Unit 1					2. DOCKET NUMBER 05000 348		3. PAGE 1 OF 4								
4. TITLE Unplanned B Train LOSP during Switchyard Breaker Testing															
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	06	2012	2012	- 004 -	00	05	31	2012	FACILITY NAME	DOCKET NUMBER					
9. OPERATING MODE <div style="text-align: center; font-size: 1.5em;">6</div>			11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: <i>(Check all that apply)</i>												
10. POWER LEVEL <div style="text-align: center; font-size: 1.5em;">000</div>			<table style="width: 100%; border: none;"> <tr> <td style="width: 25%; vertical-align: top;"> <input type="checkbox"/> 20.2201(b) <input type="checkbox"/> 20.2201(d) <input type="checkbox"/> 20.2203(a)(1) <input type="checkbox"/> 20.2203(a)(2)(i) <input type="checkbox"/> 20.2203(a)(2)(ii) <input type="checkbox"/> 20.2203(a)(2)(iii) <input type="checkbox"/> 20.2203(a)(2)(iv) <input type="checkbox"/> 20.2203(a)(2)(v) <input type="checkbox"/> 20.2203(a)(2)(vi) </td> <td style="width: 25%; vertical-align: top;"> <input type="checkbox"/> 20.2203(a)(3)(i) <input type="checkbox"/> 20.2203(a)(3)(ii) <input type="checkbox"/> 20.2203(a)(4) <input type="checkbox"/> 50.36(c)(1)(i)(A) <input type="checkbox"/> 50.36(c)(1)(ii)(A) <input type="checkbox"/> 50.36(c)(2) <input type="checkbox"/> 50.46(a)(3)(ii) <input type="checkbox"/> 50.73(a)(2)(i)(A) <input type="checkbox"/> 50.73(a)(2)(i)(B) </td> <td style="width: 25%; vertical-align: top;"> <input type="checkbox"/> 50.73(a)(2)(i)(C) <input type="checkbox"/> 50.73(a)(2)(ii)(A) <input type="checkbox"/> 50.73(a)(2)(ii)(B) <input type="checkbox"/> 50.73(a)(2)(iii) <input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A) <input type="checkbox"/> 50.73(a)(2)(v)(A) <input type="checkbox"/> 50.73(a)(2)(v)(B) <input type="checkbox"/> 50.73(a)(2)(v)(C) <input type="checkbox"/> 50.73(a)(2)(v)(D) </td> <td style="width: 25%; vertical-align: top;"> <input type="checkbox"/> 50.73(a)(2)(vii) <input type="checkbox"/> 50.73(a)(2)(viii)(A) <input type="checkbox"/> 50.73(a)(2)(viii)(B) <input type="checkbox"/> 50.73(a)(2)(ix)(A) <input type="checkbox"/> 50.73(a)(2)(x) <input type="checkbox"/> 73.71(a)(4) <input type="checkbox"/> 73.71(a)(5) <input type="checkbox"/> OTHER <div style="font-size: 0.8em;">Specify in Abstract below or in NRC Form 366A</div> </td> </tr> </table>									<input type="checkbox"/> 20.2201(b) <input type="checkbox"/> 20.2201(d) <input type="checkbox"/> 20.2203(a)(1) <input type="checkbox"/> 20.2203(a)(2)(i) <input type="checkbox"/> 20.2203(a)(2)(ii) <input type="checkbox"/> 20.2203(a)(2)(iii) <input type="checkbox"/> 20.2203(a)(2)(iv) <input type="checkbox"/> 20.2203(a)(2)(v) <input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 20.2203(a)(3)(i) <input type="checkbox"/> 20.2203(a)(3)(ii) <input type="checkbox"/> 20.2203(a)(4) <input type="checkbox"/> 50.36(c)(1)(i)(A) <input type="checkbox"/> 50.36(c)(1)(ii)(A) <input type="checkbox"/> 50.36(c)(2) <input type="checkbox"/> 50.46(a)(3)(ii) <input type="checkbox"/> 50.73(a)(2)(i)(A) <input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(i)(C) <input type="checkbox"/> 50.73(a)(2)(ii)(A) <input type="checkbox"/> 50.73(a)(2)(ii)(B) <input type="checkbox"/> 50.73(a)(2)(iii) <input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A) <input type="checkbox"/> 50.73(a)(2)(v)(A) <input type="checkbox"/> 50.73(a)(2)(v)(B) <input type="checkbox"/> 50.73(a)(2)(v)(C) <input type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/> 50.73(a)(2)(vii) <input type="checkbox"/> 50.73(a)(2)(viii)(A) <input type="checkbox"/> 50.73(a)(2)(viii)(B) <input type="checkbox"/> 50.73(a)(2)(ix)(A) <input type="checkbox"/> 50.73(a)(2)(x) <input type="checkbox"/> 73.71(a)(4) <input type="checkbox"/> 73.71(a)(5) <input type="checkbox"/> OTHER <div style="font-size: 0.8em;">Specify in Abstract below or in NRC Form 366A</div>
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12. LICENSEE CONTACT FOR THIS LER															
FACILITY NAME J.M. Farley Nuclear Plant, W. D. Oldfield – Principal Licensing Engineer									TELEPHONE NUMBER (Include Area Code) (334) 814-4765						
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						
14. SUPPLEMENTAL REPORT EXPECTED <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE)									15. EXPECTED SUBMISSION DATE						
									MONTH DAY YEAR						
ABSTRACT <i>(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)</i>															
<p>On April 6, 2012 at approximately 14:44, with Unit 1 in mode 6, an unplanned loss of power on B-train 4160 volt emergency bus 1G occurred during scheduled high voltage switchyard breaker testing activities. The 1G bus was powered from the 1B startup transformer (SUT) that lost power when power circuit breaker (PCB) 820 unexpectedly opened. A second PCB, 924, to the 1B SUT was out of service for breaker testing. During that fault circuitry testing, an unanticipated trip of the adjacent PCB 820 occurred due to an inadequate test procedure. When power was lost to the 1B SUT an undervoltage condition was sensed on the 1G bus and the B1G Sequencer caused the DG-15 feeder breaker to open and initiated a load shed on the 1G bus. Due to B-train outage conditions, the 1B Emergency Diesel Generator (EDG) was tagged out and did not automatically start and therefore no Loss of Offsite Power (LOSP) loads started. All systems functioned as designed for this condition. Since core cooling was aligned to the A-train prior to the event, the A-train, 1A Residual Heat Removal (RHR) pump remained in service for shutdown cooling. Unit 2 was unaffected and remained at 100 percent power during the event.</p> <p>The 1G bus was restored to service on April 6, 2012 at 15:42. Investigation revealed that the test procedure did not contain a step to isolate one of the fault protection relay schemes for PCB 820. The test procedure was corrected and the test was successfully completed on April 7, 2012.</p>															

LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET

U.S. NUCLEAR REGULATORY COMMISSION

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 4
		2012	- 004	- 00	

NARRATIVE

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

Description of Event

On April 6, 2012 at approximately 14:44, with Unit 1 in mode 6, an unplanned loss of power on B-train 4160 volt emergency bus 1G [EK] occurred during scheduled high voltage switchyard breaker testing activities. The 1G bus was powered from the 1B startup transformer (SUT) [EB] that lost power when power circuit breaker (PCB) 820 [FK] unexpectedly opened. A second alternate PCB, 924, to the 1B SUT was out of service for breaker testing. During the fault circuitry testing by Alabama Power Company transmission personnel, an unanticipated trip of the adjacent PCB 820 occurred due to an inadequate test procedure.

Testing on PCB 924 was intended to test the Breaker Failure Scheme. This scheme will normally trip adjacent breakers to isolate a fault in the event a breaker does not open. The procedure intentionally tests the functionality of this circuit from all possible inputs. It is critical that all trips of adjacent breakers are isolated during testing or the schemes will trip open in-service breakers such as PCB 820.

After PCB 820 tripped open, power was lost to the 1B SUT and an undervoltage condition was sensed on the 1G bus. As a result, the B1G Sequencer caused the DG-15 feeder breaker to the 1G bus to open and initiated a load shed on the 1G bus. Due to B-train outage conditions, the 1B Emergency Diesel Generator (EDG) [EK] was tagged out and did not automatically start and therefore no Loss of Offsite Power (LOSP) loads started. All systems functioned as designed for this condition. Since core cooling was aligned to the A-train prior to the event, the A-train, 1A Residual Heat Removal (RHR) [BP] pump remained in service for shutdown cooling. Unit 2 was unaffected and remained at 100 percent power during the event.

The 1G bus was restored to service on April 6, 2012 at 15:42. Investigation revealed that the test procedure did not contain a step to isolate one of the fault protection relay schemes for PCB 820. The test procedure was corrected and the test was successfully completed on April 7, 2012.

In accordance with 10 CFR 50.72(b)(3)(iv)(A) for a valid actuation of the emergency AC electrical power systems (feeder breaker opened and load shed completed), an eight hour non-emergency report was issued on April 6, 2012 at 21:18, Event Notification number 47812.

Cause of Event

The direct cause of the event was an inadequate test procedure that was missing a step to isolate one of the fault protection relay schemes for PCB 820. The procedure was written by Alabama Power Protection and Control (PC) group. The procedure was prepared by PC personnel, reviewed by the PC Supervisor, and approved by a Farley Operations Shift Manager. Operations approved the Alabama Power procedure from a perspective of plant risk and did not perform a technical review. Therefore an independent technical review was not performed on the test procedure with the error.

LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET

U.S. NUCLEAR REGULATORY COMMISSION

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NARRATIVE

Safety Assessment

This event had no adverse effect on the safety and health of the public. There were no safety system functional failures and all systems functioned as designed.

Offsite power is supplied to the 230 kV and 500 kV switchyard(s) from the transmission network by six transmission lines. From the 230 kV switchyard, two electrically and physically separated circuits provide AC power, through startup auxiliary transformers, to the 4.16 kV ESF buses. The Farley Unit 1 230kV switchyard is configured in a breaker-and-a-half arrangement. This configuration has two buses with three breakers and two loads. This configuration provides reliability when the breakers are in-service since each load can be fed from either 230 kV bus. Also, it provides flexibility for breaker maintenance and testing since an individual breaker can be removed from service without loss of power to a load. This configuration involves a complex protective relaying scheme. Farley SUTs including the 1B SUT are fed from this configuration. The 1B SUT is connected to the breaker-and-a half-configuration between Power Circuit Breakers (PCBs) 820 and 924.

The Farley onsite standby power source is provided from four EDGs (1-2A, 1B, 2B, and 1C). EDGs 1-2A and 1C 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 LOSP loads.

During the PCB testing, Unit 1 was in a B-train outage in which the 1B EDG and all Engineered Safety Feature (ESF) loads were appropriately tagged out. The plant was in mode 6 and shutdown cooling was maintained at all times by the unaffected A-train and 1A RHR pump. The A-train, 1-2A EDG was operable and capable of providing emergency power to shutdown core cooling if needed. When power was lost to the 1B SUT, the undervoltage condition was sensed on the 1G emergency bus and the B1G Sequencer properly functioned to open feeder breaker DG-15 and initiate a load shed on the 1G bus. The 1B EDG did not automatically start since it was tagged out. There was no loss of safety function or any adverse effect on the safety and health of the public.

This event is reportable pursuant to 10 CFR 50.73 (a)(2)(iv)(A) for a system actuation.

Corrective Action

The 1G bus was restored to service on April 6, 2012 at 15:42.

Once the procedure error was recognized, the test guidance was modified and properly executed on April 7, 2012.

Southern Company Transmission issued requirements to perform an independent review of all nuclear plant switching and relay test procedures.

SNC and industry Operating Experience (OE) on the event has been issued.

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

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NARRATIVE

Additional Information

Similar Events:

- LER 2012-003-00 Unit 1 – Unplanned LOSP during SI with LOSP Testing
- LER 2010-001-00 Unit 2 – Unplanned LOSP during SI with LOSP Testing
- LER 2009-001-00 Unit 1 and 2 – EDG 1C Auto Start due to Inadvertent Relay Actuation