

Southern Nuclear Operating Company
Post Office Box 1295
Birmingham, Alabama 35201
Telephone (205) 868-5131



Dave Morey
Vice President
Farley Project

Southern Nuclear Operating Company
the southern electric system

February 21, 1996

10 CFR 50.73

Docket Number: 50-364

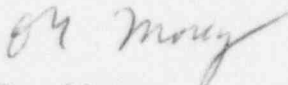
U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Joseph M. Farley Nuclear Plant - Unit 2
Licensee Event Report Number 95-009-01
Entry Into Mode 2 With Intermediate Range Neutron Flux Detector Inoperable

Ladies and Gentlemen:

Joseph M. Farley Nuclear Plant - Unit 2 Licensee Event Report No. 95-009-01 is being submitted in accordance with 10 CFR 50.73(a)(2)(i). If you have any questions, please advise.

Respectfully submitted,


Dave Morey

DRC\maf: 95-09-01.DOC

Enclosure

cc: Mr. S. D. Ebnetter, Region II Administrator
Mr. B. L. Siegel, NRR Senior Project Manager
Mr. T. M. Ross, FNP Resident Inspector

270030
9602280322 960221
PDR ADOCK 05000364
S PDR

JE221

NRC FORM 356 (4-95)		U.S. NUCLEAR REGULATORY COMMISSION		APPROVED BY OMB NO. 3150-0104 EXPIRES 04/30/98	
LICENSEE EVENT REPORT (LER)				ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.	
FACILITY NAME (1) Joseph M. Farley Nuclear Plant - Unit 2			DOCKET NUMBER (2) 0 5 0 0 0 3 6 4		PAGE (3) 1 OF 5
TITLE (4) Entry Into Specified Condition With A Intermediate Range Neutron Flux Detector Inoperable					
EVENT DATE (5)		LER NUMBER (6)		REPORT DATE (7)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER
1	1	2	9	9	5
		9		5	-
		0		0	9
		-		0	1
		0		2	2
		1		9	6
OTHER FACILITIES INVOLVED (8)					
FACILITY NAME					
FACILITY NAME					
THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 1: (Check one or more) (11)					
OPERATING MODE (9)		20.2201(b)		20.2203(a)(2)(v) <input checked="" type="checkbox"/>	
POWER LEVEL (10)		20.2203(a)(1)		20.2203(a)(3)(i)	
0 0 0		20.2203(a)(2)(i)		20.2203(a)(3)(ii)	
		20.2203(a)(2)(ii)		20.2203(a)(4)	
		20.2203(a)(2)(iii)		50.36(c)(1)	
		20.2203(a)(2)(iv)		50.36(c)(2)	
				50.73(a)(2)(i) <input checked="" type="checkbox"/>	
				50.73(a)(2)(ii)	
				50.73(a)(2)(iii)	
				50.73(a)(2)(iv)	
				50.73(a)(2)(v)	
				50.73(a)(2)(vi)	
				50.73(a)(2)(vii)	
				50.73(a)(2)(viii)	
				50.73(a)(2)(ix)	
				73.71	
				OTHER	
				Specify in Abstract below	
				or in NRC Form 366A	
LICENSEE CONTACT FOR THIS LER (12)					
NAME R.D. Hill, General Manager - Nuclear Plant				TELEPHONE NUMBER	
				AREA CODE	
				3 3 4 8 9 9 - 5 1 5 6	
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)					
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPD	
SUPPLEMENTAL REPORT EXPECTED (14)					
YES (If yes, complete EXPECTED SUBMISSION DATE)				NO	
				DATE (15)	
				MONTH DAY YEAR	
ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-space typewritten lines) (16)					
<p>At approximately 2011 on November 29, 1995, while in mode 3, Unit 2 entered a specified condition and subsequently, an operational mode prohibited by Technical Specifications with the intermediate range neutron flux detector [JC] (NI-36) inoperable. Prior to a Unit 2 reactor trip on November 28, 1995, NI-36 had been declared inoperable due to indicating lower than expected at 100 percent power. With Unit 2 in mode 3 on November 28, 1995, maintenance was scheduled for NI-36. Following NI-36 replacement, a technician inappropriately signed a procedure step indicating that NI-36 drawer cables had been re-connected. During the subsequent Unit 2 reactor startup, a disparity was observed between the intermediate range neutron flux detectors. As a result, the control rods were manually inserted. Criticality had not been achieved. A review of the recorded neutron flux indications concluded that entry into mode 2 had been achieved with NI-36 inoperable. A subsequent review concluded that during the time of NI-36 inoperability the control rod drive system was capable of rod withdrawal with the reactor trip breakers closed. The cause of this event was cognitive personnel error in that an individual inappropriately signed for completing a procedure step which had not been performed. A contributing cause was that the procedure did not require a verification sign-off per the writers guide for maintenance procedures. NI-36 drawer cables were re-connected and returned to service. The individual involved in this event has been disciplined. The Unit 1 and 2 NI calibration procedures have been revised to require a verification sign-off. Applicable maintenance personnel will be instructed on writer's guide usage concerning requirements for verification sign-offs. A survey of compliance to the writer's guide will be performed.</p>					

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET.

FACILITY NAME (1) Joseph M. Farley Nuclear Plant - Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 3 6 4	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL YEAR	REVISION NUMBER			
		9 5	- 0 0 9	- 0 1	2	OF	5

TEXT (If more space is required, use additional NRC Form 366) (17)

Plant and System Identification

Westinghouse - Pressurized Water Reactor

Energy Industry Identification System codes are identified in the text as [XX].

Description of Event

At approximately 2011 on November 29, 1995, while in mode 3, Unit 2 entered a specified condition prohibited by Technical Specifications (TS) in that the control rod drive system was capable of rod withdrawal with the reactor trip breakers closed and fuel in the reactor vessel with an intermediate range neutron flux detector [JC] (NI-36) inoperable. Subsequently, at 2154 Unit 2 entered an operational mode prohibited by TS in that entry into mode 2 was achieved with NI-36 inoperable.

Prior to a Unit 2 reactor trip on November 28, 1995, NI-36 had been declared inoperable due to indicating lower than expected at 100 percent power. With Unit 2 in mode 3 on November 28, 1995, maintenance was scheduled for NI-36. Maintenance performed included drawer checks, power supply checks and detector replacement.

As part of the maintenance procedure, evening shift technicians disconnected the detector drawer cables associated with a source range neutron flux detector (NI-32) and NI-36 (the two detectors are in a common housing). Following NI-36 replacement, evening shift personnel had satisfactorily signed procedural steps performed and provided turnover to the night shift crew. This turnover included the fact that detector drawer cables for NI-32 and NI-36 were disconnected and the NI-36 detector drawer was powered up. The night shift technicians proceeded with activities associated with returning NI-32 to service. During work activities on NI-32, a technician correctly signed off the completion of steps which included the re-connecting of the detector drawer cables for NI-32. One of the procedures in use by the technicians included instructions and sign-offs associated with the calibration and re-connection of the intermediate range detector drawer cables on NI-36. The technician was aware that the detector drawer cables on NI-36 had not been re-connected. However, due to inadequate self checking, the technician inappropriately signed a procedure step indicating the NI-36 detector drawer cables had been re-connected.

Night shift personnel failed to inform day shift personnel concerning the fact that the detector drawer cables for NI-36 required re-connecting. The status of detector drawer cables on NI-36 had

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)	PAGE (3)								
Joseph M. Farley Nuclear Plant - Unit 2		<table border="1"><tr><th>YEAR</th><th>SEQUENTIAL YEAR</th><th>REVISION NUMBER</th></tr><tr><td>05</td><td>00364</td><td>95 - 009 - 01</td></tr></table>	YEAR	SEQUENTIAL YEAR	REVISION NUMBER	05	00364	95 - 009 - 01	<table border="1"><tr><td>3</td><td>OF 5</td></tr></table>	3	OF 5
YEAR	SEQUENTIAL YEAR	REVISION NUMBER									
05	00364	95 - 009 - 01									
3	OF 5										

TEXT (If more space is required, use additional NRC Form 386) (17)

been documented in the summary section of the work order by evening shift personnel but was not noted by day shift personnel.

The drawer calibrations of NI-32 and NI-36 were completed and the nuclear instrumentation systems returned to service based on surveillance testing. However, due to the low neutron flux in mode 3, the surveillance testing that was performed did not have the capability of response checking the intermediate range detectors. Subsequently, a reactor startup was commenced. As the reactor startup continued, neutron flux indications, which included NI-36 and the redundant intermediate range neutron flux detector (NI-35), were monitored. As NI-35 started to upscale from its lowest capable indication, the operator at the controls immediately noted a disparity in the intermediate range neutron flux channels in that NI-36 had not begun to upscale from pre-startup indications. This condition was observed with control rods stable at Bank D at 66 steps. In order to observe the startup rate response associated with NI-36, control rods were withdrawn to Bank D at 77 steps. During the control rod withdrawal, a startup rate was observed on the startup rate indicator associated with NI-35, but not NI-36. Control rod withdrawal was secured and it was determined that the detector drawer cables had not been re-connected. As a result, the control rods were manually inserted. Criticality had not been achieved. A subsequent review of recorded flux indications concluded that entry into mode 2 had been achieved with NI-36 inoperable. Following an additional review on January 23, 1996, it was concluded that during the time of NI-36 inoperability the specified condition of having the control rod drive system capable of rod withdrawal, with the reactor trip breakers in the closed position and fuel in the reactor vessel had been entered at approximately 2011 on November 29, 1995. This specified condition prohibited by TS was exited when NI-36 was returned to operable status at 2357 on November 29, 1995.

Cause of Event

The cause of this event was cognitive personnel error due to inadequate self checking in that an individual inappropriately signed for completing a procedure step which had not been performed. A contributing cause was that the procedure did not require a verification sign-off per the guidelines found in the writer's guide for maintenance procedures.

Safety Assessment

Farley Nuclear Plant's design includes a functional source range high neutron flux reactor trip that is automatically actuated when either of the two channels reaches 10E5 cps if not manually blocked.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH 1.65
MANDATORY INFORMATION COLLECTION REQUEST 500 HRS.
REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE
LICENSING PROCESS AND FED BACK TO INDUSTRY FORWARD
COMMENTS REGARDING BURDEN ESTIMATE TO THE
INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33)
U.S. NUCLEAR REGULATORY COMMISSION WASHINGTON, DC
20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT
(3150-0104) OFFICE OF MANAGEMENT AND BUDGET

FACILITY NAME (1) Joseph M. Farley Nuclear Plant - Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 3 6 4 9 5 - 0 0 9 - 0 1	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL YEAR	REVISION NUMBER			
		9	5	-	0	0	9

TEXT (If more space is required, use additional NRC Form 366) (17)

In addition, a functional intermediate range high neutron flux reactor trip that is automatically actuated when either of the two independent intermediate range channels reaches a current level proportional to approximately 25% of rated thermal power. During the time period of this event, the functions of NI-35, both source range channels, and all power range channels remained operable. In addition, the control rod stops associated with NI-35 and the power range channels remained capable of discontinuing control rod withdrawal. It should be noted that the functionality of the source and intermediate range reactor trips is not credited in the FNP safety analyses.

A reactivity assessment concluded that during this event control rod bank withdrawal was secured at a k_{eff} of approximately 0.996, thus the reactor had not achieved criticality. However, k_{eff} was greater than the TS definition of mode 2 which is greater than or equal to 0.99. During this event the TS shutdown margin was satisfied.

This event would not have been more severe if it had occurred under different operating conditions.

The health and safety of the public was unaffected by this condition.

Corrective Action

The NI-36 detector drawer cables were re-connected and NI-36 returned to service prior to subsequent control rod withdrawal.

The individual who inappropriately signed for completing a procedure step which had not been performed has been disciplined.

The Unit 1 and 2 NI calibration procedures have been revised to require a verification sign-off in accordance with the guidelines of the writer's guide for maintenance procedures.

Applicable maintenance personnel will be instructed on writer's guide usage concerning requirements for verification sign-offs.

A survey of I&C procedures will be performed to verify writer's guide requirements for verification sign-offs are being met. Any problems found during the survey will be corrected.

Corrective actions will be completed by June 30, 1996.

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 500 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET.

FACILITY NAME (1) Joseph M. Farley Nuclear Plant - Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 3 6 4	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL YEAR	REVISION NUMBER		
		9 5	- 0 0 9	- 0 1	5	OF 5

TEXT (If more space is required, use additional NRC Form 366) (17)

Additional Information

No similar LERs have been submitted.