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Southern Nuclear Operating Company

*the southern electric system*

Dave Morey  
Vice President  
Farley Project

December 19, 1995

Docket No.: 50-364

10 CFR 50.73

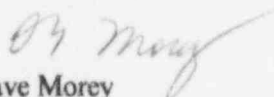
U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555

Joseph M. Farley Nuclear Plant - Unit 2  
Licensee Event Report No. 95-009-00  
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. 95-009-00 is being submitted in accordance with 10 CFR 50.73(a)(2)(i). If you have any questions, please advise.

Respectfully submitted,

  
Dave Morey

REM:maf LER95009.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

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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 4
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TITLE (4)  
Entry into Mode 2 with Intermediate Range Neutron Flux Detector Inoperable

EVENT DATE (6)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)														
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME														
1	1	2	9	9	5	9	5	-	0	0	9	-	0	0	1	2	1	9	9	5			

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 1: (Check one or more) (11)

OPERATING MODE (9) 2	20.2201(b)	20.2203(a)(2)(v)	<input checked="" type="checkbox"/>	50.73(a)(2)(i)	50.73(a)(2)(viii)
POWER LEVEL (10) 0 0 0	20.2203(a)(1)	20.2203(a)(3)(i)	<input type="checkbox"/>	50.73(a)(2)(ii)	50.73(a)(2)(c)
	20.2203(a)(2)(i)	20.2203(a)(3)(ii)	<input type="checkbox"/>	50.73(a)(2)(iii)	73.71
	20.2203(a)(2)(ii)	20.2203(a)(4)	<input type="checkbox"/>	50.73(a)(2)(iv)	OTHER
	20.2203(a)(2)(iii)	50.36(c)(1)	<input type="checkbox"/>	50.73(a)(2)(v)	Specify in Abstract below
	20.2203(a)(2)(iv)	50.36(c)(2)	<input type="checkbox"/>	50.73(a)(2)(vi)	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
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRPDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRPDS

SUPPLEMENTAL REPORT EXPECTED (14)

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

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-space typewritten lines) (16)

At 2154 on November 29, 1995, with Unit 2 in mode 2 performing a reactor startup Farley Nuclear Plant entered a condition prohibited by technical specifications in that entry into mode 2 was achieved with intermediate range neutron flux detector [JC] NI-36 inoperable. Prior to the Unit 2 reactor trip on November 28, 1995, the intermediate range neutron flux detector (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, corrective maintenance was scheduled for NI-36. Following detector replacement, a technician inappropriately signed a procedure step indicating the detector drawer cables had been re-connected. During the subsequent Unit 2 reactor startup, a disparity was observed between the redundant intermediate range neutron flux detectors. As a result, the control rods were manually inserted prior to achieving criticality. However, a subsequent review of recorded neutron flux indications concluded that entry into mode 2 had been achieved.

The cause of this event was cognitive personnel error in that an individual inappropriately signed for completing a procedure step which the individual had not performed. A contributing cause was that the procedure did not require a verification sign-off.

The detector drawer cables were re-connected and NI-36 returned to service. The individual involved in this event has been disciplined. The Unit 1 and 2 calibration procedures have been revised to require a verification sign-off.

NRC FORM 366A (4-95)	U.S. NUCLEAR REGULATORY COMMISSION	APPROVED BY OMB NO. 3150-0104 EXPIRES 04/30/98 <small>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-8 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.</small>															
<b>LICENSEE EVENT REPORT (LER) TEXT CONTINUATION</b>																	
FACILITY NAME (1)  Joseph M. Farley Nuclear Plant - Unit 2	DOCKET NUMBER (2)  0   5   0   0   0   3   6   4	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="3">LER NUMBER (6)</th> <th colspan="2">PAGE (3)</th> </tr> <tr> <th>YEAR</th> <th>SEQUENTIAL YEAR</th> <th>REVISION NUMBER</th> <th></th> <th></th> </tr> <tr> <td>95</td> <td>- 009</td> <td>- 00</td> <td>2</td> <td>OF 4</td> </tr> </table>	LER NUMBER (6)			PAGE (3)		YEAR	SEQUENTIAL YEAR	REVISION NUMBER			95	- 009	- 00	2	OF 4
LER NUMBER (6)			PAGE (3)														
YEAR	SEQUENTIAL YEAR	REVISION NUMBER															
95	- 009	- 00	2	OF 4													

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 2154 on November 29, 1995, with Unit 2 in mode 2 performing a reactor startup, Farley Nuclear Plant entered a condition prohibited by technical specifications in that entry into mode 2 was achieved with intermediate range neutron flux detector [JC] NI-36 inoperable.

Prior to the Unit 2 reactor trip on November 28, 1995, the intermediate range neutron flux detector (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, corrective 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 detector 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 the intermediate range detector cables had been documented in the summary section of the work order by evening shift personnel, but was not noted by day shift personnel.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

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FACILITY NAME (1)  Joseph M. Farley Nuclear Plant - Unit 2	DOCKET NUMBER (2)  05000364	LER NUMBER (6)			PAGE (3)	
		YEAR 95	SEQUENTIAL YEAR - 009	REVISION NUMBER - 00		

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

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, surveillance testing does not have the capability of response checking the intermediate range detectors. At 2112 on November 29, 1995, Unit 2 reactor startup was commenced. As the 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 bank D control rods stationary at 66 steps. In order to observe the startup rate response associated with NI-36, bank D control rods were withdrawn 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 prior to achieving criticality. However, a subsequent review of recorded neutron flux indications concluded that entry into mode 2 had been achieved.

Cause of Event

The cause of this event was cognitive personnel error in that an individual inappropriately signed for completing a procedure step which the individual had not performed. A contributing cause was that the procedure did not require a verification sign-off.

Safety Assessment

Farley Nuclear Plant's design includes 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 equivalent to approximately 25% of rated thermal power. During the time period that NI-36 was inoperable, the functions of the redundant intermediate range channel (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 Farley safety analyses.

A reactivity assessment concluded that during this event control rod bank withdrawal was secured at a  $k_{eff}$  of approximately .996, thus the reactor had not achieved criticality. However,  $k_{eff}$  was greater than the technical specification definition of mode 2 which is greater than or equal to 0.99. During this event the technical specification shutdown margin requirement was satisfied.

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TEXT CONTINUATION

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		YEAR	SEQUENTIAL YEAR	REVISION NUMBER		
		9   5	-   0   0   9	-   0   0	4	OF 4

TEXT (If more space is required, use additional NRC Form 360) (17)

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 was returned to service prior to subsequent control rod withdrawal.

The individual involved in this event has been disciplined.

The Unit 1 and 2 calibration procedures have been revised to require a verification sign-off.

Additional Information

No similar LER's have been submitted.