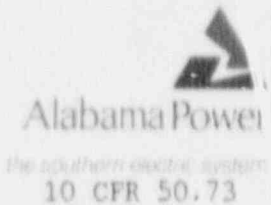


Alabama Power Company  
40 Inverness Center Parkway  
Post Office Box 1295  
Birmingham, Alabama 35201  
Telephone 205 806 5086

J. D. Woodard  
Vice President-Nuclear  
Farley Project

April 23, 1991



Docket No. 50-364

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

Joseph M. Farley Nuclear Plant - Unit 2  
Licensee Event Report No. LER 91-001-00

Gentlemen:

Joseph M. Farley Nuclear Plant, Unit 2, Licensee Event Report No. LER 91-001-00 is being submitted in accordance with 10 CFR 50.73. If you have any questions, please advise.

Respectfully submitted,

J. D. Woodard

JDW/BHW:maf8.28

Enclosure

cc: Mr. S. D. Ebnetter  
Mr. G. F. Maxwell

9104260217 910423  
PDR ADOCK 05000364  
S PDR

TE22

## LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 600 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (F-30), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20545, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

Joseph M. Farley - Unit 2

DOCKET NUMBER (2)

0 5 0 0 0 3 6 4 1 OF 0 3

PAGE (3)

TITLE (4)

Dropped Control Rod Causes Reactor Trip

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES		DOCKET NUMBER(S)
04	01	91	91	001	0	04	23	91			0 5 0 0 0
OPERATING MODE (9)			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5. (Check one or more of the following) (11)								
1			<input checked="" type="checkbox"/> 20.402(b) <input type="checkbox"/> 20.405(a) <input checked="" type="checkbox"/> 50.73(a)(2)(iv) <input type="checkbox"/> 73.71(b)								
POWER LEVEL (10)			<input type="checkbox"/> 20.405(a)(1)(i) <input type="checkbox"/> 50.36(a)(1) <input type="checkbox"/> 50.73(a)(2)(iv) <input type="checkbox"/> 73.71(a)								
100			<input type="checkbox"/> 20.405(a)(1)(ii) <input type="checkbox"/> 50.36(a)(2) <input type="checkbox"/> 50.73(a)(2)(iv) <input type="checkbox"/> OTHER (Specify in Abstract below and in Text, NRC Form 306A)								
			<input type="checkbox"/> 20.405(a)(1)(iii) <input type="checkbox"/> 50.73(a)(2)(i) <input type="checkbox"/> 50.73(a)(2)(iv)(A) <input type="checkbox"/>								
			<input type="checkbox"/> 20.405(a)(1)(iv) <input type="checkbox"/> 50.73(a)(2)(ii) <input type="checkbox"/> 50.73(a)(2)(iv)(B) <input type="checkbox"/>								
			<input type="checkbox"/> 20.405(a)(1)(v) <input type="checkbox"/> 50.73(a)(2)(iii) <input type="checkbox"/> 50.73(a)(2)(v) <input type="checkbox"/>								

LICENSEE CONTACT FOR THIS LER (12)

NAME

D. N. Morey, General Manager - Nuclear Plant

TELEPHONE NUMBER

AREA CODE

2 0 5 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 NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC
B	AA	XXXXX	W 120	Y					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)

☒ NO

EXPECTED SUBMISSION DATE (15)

MONTH DAY YEAR

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

At 1055 on 4-1-91, while operating at approximately 100 percent power, a reactor trip occurred when rod H-10 dropped into the core. The reactor trip occurred due to a high negative flux rate as detected by the power range nuclear detectors. The operator was performing PNP-2-STP-5.0 (Full Length Control Rod Operability Test). When control rod group C was tested, rod H-10 dropped into the core.

This event was caused by defective circuit card(s) in the rod control system. The suspect cards were replaced and the Unit returned to power operation at 1208 on 4-09-91.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 600 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (F-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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

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

Plant and System Identification

Westinghouse - Pressurized Water Reactor

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

Summary of Event

At 1055 on 4-1-91, while operating at approximately 100 percent power, a reactor trip occurred when rod H-10 dropped into the core. The reactor trip occurred due to a high negative flux rate as detected by the power range nuclear detectors. The operator was performing FNP-2-STP-5.0 (Full Length Control Rod Operability Test). When control rod group C was tested, rod H-10 dropped into the core.

Description of Event

On 4-1-91, the unit was operating at approximately 100 percent power and surveillance test procedure FNP-2-STP-5.0 [AA] was being performed. At 1055, when the operator was moving the control bank C rods he saw rod H-10 drop into the core. A high negative flux rate reactor trip was generated by the power range nuclear detectors [IG]. Following the trip, the operators implemented FNP-2-EEP-0 (Reactor Trip or Safety Injection) and FNP-2-ESP-0.1 (Reactor Trip Response), ensuring that the unit was safely in Mode 3. The unit was maintained in a stable condition.

An intensive investigation was performed to determine the cause of the dropped rod. The investigation included both APCo and Westinghouse personnel. All fuses in the rod control cabinets were checked. Continuity checks were performed for the affected rod bank on cables, coils and connections inside and outside of containment. The reactor missile shield was removed to allow the rod control cable connectors on the reactor head to be examined. A Westinghouse rod control system field service engineer came to PNP to assist in the troubleshooting. The investigation continued with no problems noted until 4-7-91.

On 4-7-91, while withdrawing bank C rods, rod F-8 did not indicate outward motion. Additional troubleshooting continued with no deficiencies noted. Due to the intermittent nature of the problem, a test was developed utilizing recorders. Recorders were connected to monitor appropriate rod control electronic signals continuously during the test. With the recorders in operation, the affected rod bank was again cycled. During the first three rod bank withdrawal and insertion cycles, no abnormalities were noted with the rod movement or the recorded signals. On withdrawal during the fourth cycle, however, two rods in bank C dropped partially into the core. The intermittent problem was visible on the recorders. Evaluation of the recorder traces showed this group of rods received incorrect current orders for the stationary gripper coils. Three circuit cards that could cause this condition were replaced. Bank C rods were tested after this card replacement. No further problems were noted.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (F-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)  Farley Nuclear Plant - Unit 2	DOCKET NUMBER (2)  06000364	LER NUMBER (6)			PAGE (3)		
		YEAR 91	SEQUENTIAL NUMBER 001	REVISION NUMBER 0	003 OF	03	

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

Cause of Event

This event was caused by defective circuit card(s) in the rod control system.

Reportability Analysis and Safety Assessment

This event is reportable because of the actuation of the reactor protection system. After the trip, the following safety systems operated as designed: main feedwater was isolated by automatic closure of the flow control valves and bypass valves, auxiliary feedwater pumps started automatically and provided flow to the steam generators, and pressurizer heaters and spray valves operated automatically as requested to maintain system pressure. The source range nuclear detectors energized automatically.

There was no effect on the health and safety of the public.

Corrective Action

The suspect circuit cards were replaced and sent to Westinghouse for evaluation.

Additional Information

The unit was returned to power operation at 1208 on 4-9-91.

<u>Description</u>	<u>Part Number</u>	<u>Location</u>
Firing Circuit Spin No. CPELC02	6050D12G01	2 AC Power Cabinet
I/O Alarm Circuit Amplifier - A804	3359C65G01	Logic Cabinet
Slave Cyclor Decoder - A401	3359C62G02	Logic Cabinet

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