

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Joseph M. Farley - Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 3 6 4	PAGE (3) 1 OF 0 2
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TITLE (4)
Reactor Trip Due To Malfunction Of Both Control Rod Drive Motor Generator Sets

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		
0 6	0 8	8 6	8 6	0 0 7	0 0	0 7	0 3	8 6	DOCKET NUMBER(S) 0 5 0 0 0		

OPERATING MODE (9) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)									
POWER LEVEL (10) 0 8 1	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)						
	<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)						
	<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	OTHER (Specify in Abstract Below and in Text, NRC Form 366A)						
	<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)							
	<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)							
<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)								

LICENSEE CONTACT FOR THIS LER (12)	
NAME J. D. Woodard	TELEPHONE NUMBER AREA CODE: 2 0 5 NUMBER: 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 NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	
B	A A	M G	W 1 2 0	Y						
B	A A	6 7	W 1 2 0	Y						

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

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

At 0633 on 6-8-86, both motor-generator (MG) sets supplying power to the control rod drive system malfunctioned. This removed the source of power to the grippers of the control rod drive mechanisms and allowed all the control rods to fall into the core resulting in a high negative flux rate. The reactor trip breakers opened due to the high negative flux rate.

An investigation has determined that the 2A MG set lost its field which caused the output voltage to go to zero. The output breaker of the 2B MG set opened due to the actuation of a directional overcurrent relay (IRV). The reason for the loss of output of the 2A MG set has not been determined. The 2B MG set should not have tripped. However, a plunger was found to be out of adjustment on an auxiliary relay of the IRV on the "C" phase of the 2B MG set. This caused the output breaker on the 2B MG set to open when the 2A MG set stopped generating.

In order to prevent recurrence of this type of event, the IRVs on all MG sets at FNP have been checked and re-adjusted as required. The appropriate procedures will be revised to include the additional tasks necessary to check the auxiliary relays on the IRVs.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		

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

At 0633 on 6-8-86, with the unit operating at 81% power, both motor-generator (MG) sets supplying power to the control rod drive system malfunctioned. This removed the source of power to the grippers of the control rod drive mechanisms and allowed all the control rods to fall into the core resulting in a high negative flux rate. The reactor trip breakers opened due to the high negative flux rate.

Immediately after the trip, it was found that the 2A MG set was still running with the output breaker closed but the MG set was generating no output voltage. The 2B MG set was running but the output breaker was open and local indication showed that the output breaker had opened due to the actuation of a directional overcurrent relay (IRV) (Westinghouse type IRV-2 style number 290B089A09A). It appeared that a problem had occurred with the 2A MG set that caused the set to lose its field. The cause for the loss of field on the 2A MG set has not been determined.

The protective circuitry on the 2A MG set should have opened its output breaker when the field was lost but this did not occur. Investigation revealed that a plunger screw was loose on an auxiliary relay on the IRV on the "C" phase on the 2A MG set; this caused this IRV to be inoperable. The IRV on the "A" phase of the 2A MG set remained operable. However, it was found that a plunger on an auxiliary relay of the IRV on the "C" phase of the 2B MG set was out of adjustment. This had allowed this auxiliary relay to remain closed improperly due to residual magnetism. The closed auxiliary relay caused the IRV to lose its directional characteristics. The closed auxiliary relay also allowed the IRV to actuate more rapidly than normal. Therefore, when the 2A MG set stopped generating and the 2B MG set assumed the full load, the IRV on the "C" phase of the 2B MG set caused the 2B MG set output breaker to open before the output breaker on the 2A MG set could open.

Following testing, it was found that the 2B MG set operated satisfactorily. The unit returned to power operation at 0110 on 6-9-86 utilizing only the 2B MG set.

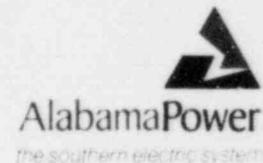
During subsequent investigation, it was found that the adjustment of the auxiliary relay of the IRVs on the MG sets is set at the factory. The technical manual for the MG sets does not address routine checking of these auxiliary relays on the IRVs.

In order to prevent recurrence of this type of event, the IRVs on all MG sets at FNP have been checked and re-adjusted as required. The appropriate procedures will be revised to include the additional tasks necessary to check the auxiliary relays on the IRVs.

The health/safety of the public was not affected by this event.

Mailing Address
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600 North 18th Street
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R. P. McDonald
Senior Vice President
Flintridge Building



July 3, 1986

Docket No. 50-364

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

Joseph M. Farley Nuclear Plant - Unit 2
Licensee Event Report No. LER 86-007-00

Dear Sir:

Joseph M. Farley Nuclear Plant, Unit 2, Licensee Event Report No. LER 86-007-00 is being submitted in accordance with 10CFR50.73.

If you have any questions, please advise.

Respectfully submitted,

R. P. McDonald

RPM/JAR:dst-LER

Enclosure

cc: IE, Region II

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