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W. G. Hairston, III
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Alabama Power
the southern electric system

10 CFR 50.73

June 22, 1989

Docket No. 50-364

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

Dear Sir:

Joseph M. Farley Nuclear Plant - Unit 2
Licensee Event Report No. LER 89-008-00

Joseph M. Farley Nuclear Plant, Unit 2, Licensee Event Report No. LER 89-008-00 is being submitted in accordance with 10CFR50.73.

If you have any questions, please advise.

Respectfully submitted,

W. G. Hairston, III

WGH,III/JAR:slc 8.26

Enclosure

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

IE22
1/

NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Joseph M. Farley - Unit 2	0 5 0 0 0 3 6 4	1 OF 0 3

TITLE (4) Reactor Trip Caused By Inadequate Procedure For Verifying Proper Insulation After Reassembly of Bearing Oil Piping

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)
											0 5 0 0 0
0 5	2 7	8 9	8 9	—	0 0 8	— 0 0	0 6	2 2	8 9		0 5 0 0 0

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
1		20.402(b)	20.405(c)	X 50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10)	0 8 8	20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
D. N. Morey, General Manager-Nuclear Plant	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 NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	
B	J K	E X C	W 1 2 0	N							

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

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

At 0906 on 5-27-89, with the unit operating at 88% power and a three percent per hour power increase in progress, the reactor tripped due to a turbine trip. The turbine trip resulted from a generator trip caused by loss of excitation. The loss of excitation was caused by the failure of the #9 exciter bearing which resulted in the failure of the shaft driven permanent magnet generator (PMG). The #9 bearing failed when contract personnel failed to install an insulating washer on one of the four bolts on a bearing oil line flange.

This event was caused by an inadequate procedure. Although a procedure did exist for the reassembly of the bearing oil piping, there was no method for verifying proper insulation capability following reassembly. Because the bearing oil line flange bolt insulating washer was not installed as required, the #9 exciter bearing eventually failed. A new bearing and PMG stator have been installed. A procedure (FNP-0-EMP-1171.02, Generator Shaft/Pedestal Insulation Verification) has been developed to verify proper insulation of the #9 bearing.

The unit returned to power operation on 5-31-89 at 2021.

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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 0906 on 5-27-89, with the unit operating at approximately 88% power and a three percent per hour power increase in progress, the reactor [AB] tripped due to a turbine [TA] trip. The turbine trip resulted from a generator [TB] trip caused by loss of excitation. The loss of excitation was caused by the failure of the #9 exciter [TL] bearing which resulted in the failure of the shaft driven permanent magnet generator (PMG). The #9 bearing failed when contract personnel failed to install an insulating washer on one of the four bolts on a bearing oil line flange.

Description of Event

On 5-27-89, Unit 2 was operating at 88% power and ramping up. At approximately 0858, the #9 bearing on the exciter failed. This failure led to an exciter fault. This fault tripped the generator and turbine. At 0906, an automatic reactor trip resulted per design.

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 (Hot Standby). The unit was maintained in a normal stable condition.

Cause of Event

This event was caused by inadequate procedure in that no verification was performed after reassembly of the bearing oil piping to ensure that the bearing was insulated properly.

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 with flow control valves and bypass valves closed, auxiliary feedwater pumps started automatically and provided flow to the steam generators, source range nuclear instrumentation automatically energized, and pressurizer heaters and spray valves operated automatically as required to maintain system pressure. There was no effect on the health and safety of the public.

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

Corrective Action

A new bearing and PMG stator have been installed. A procedure (FNP-O-EMP-1171.02, Generator Shaft/Pedestal Insulation Verification) has been developed to verify proper insulation of the #9 bearing.

Additional Information

The unit returned to power operation on 5-31-89 at 2021.

No similar LERs have been submitted by Farley Nuclear Plant.

The exciter bearing was manufactured by Westinghouse Electric Corporation.

The part number of the bearing is 613F432G01.

No other components failed during this event.

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

*U.S. GPO: 1988-520-589/00070