MISSISSIPPI POWER & LIGHT COMPANY
Helping Build Mississippi
P. O. BOX 1640, JACKSON, MISSISSIPPI 39205

JAMES P. McGAUGHY, JR.
VICE PRESIDENT

April 20, 1984

U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, N.W.
Suite 2900
Atlanta, Georgia 30303

Attention: Mr. J. P. O'Reilly, Regional Administrator

Dear Mr. O'Reilly:

SUBJECT: Grand Gulf Nuclear Station
Unit 1
Docket No. 50-416
License No. NPF-13
File 0260/15525/15526/16694.4
PRD-84/07, Final Report,
Defect in Positive
Positioning Action of GE Type
SBM Switch
AECM-84/0236

On April 16, 1984, Mississippi Power & Light Company notified Mr. R. Carroll, of your office, of a Reportable Deficiency at the Grand Gulf Nuclear Station (GGNS). The deficiency concerns a defective SBM control switch. The positive positioning detent mechanism was found to be installed 45 degrees out of position. This caused a positive detent in the middle of the switch rotation, between MAINTENANCE and AUTO positions, as opposed to a positive detent at each end of the switch rotation.

MP&L has evaluated this deficiency and has determined that it is reportable under the provisions of 10CFR21 for Unit 1. The deficiency is not applicable to Unit 2. Attached is our Final Report.

Yours truly,

RDC
KDS/RDC:dr
ATTACHMENT

cc: See page 2

IE19

cc: Mr. J. B. Richard
Mr. R. B. McGehee
Mr. T. B. Conner

Mr. Richard C. DeYoung, Director
Office of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. G. B. Taylor
South Miss. Electric Power Association
P. O. Box 1589
Hattiesburg, MS 39401

FINAL REPORT FOR PRD-84/07

1. Name and address of the individual ... informing the commission:

J. P. McGaughy, Jr.
Vice-President, Nuclear
P.O. Box 1640
Jackson, Mississippi 39205

2. Identification of the facility ... which ... contains a deficiency:

Grand Gulf Nuclear Station (GGNS) Unit 1
Port Gibson, Mississippi 39150

3. Identification of the firm ... supplying the basic component which ... contains a deficiency:

The GE SBM Mode Select Switch was supplied to Grand Gulf by General Electric Company, San Jose, California, 95125.

4. Nature of the deficiency ... and the safety hazard which ... could be created by such a deficiency ...:

A. Description of the Deficiency

The HPCS Diesel Generator (D/G) failed to start upon the receipt of an automatic initiated start signal. The failure was caused by a General Electric (GE) type SBM, Model No. 10BP429, MODE SELECT SWITCH failure. The switch provides two modes of control, AUTO and MAINTENANCE. The AUTO mode position allows the HPCS D/G to be started from either an automatically initiated start signal or a remote manual start signal. The MAINTENANCE mode position only allows a local start capability.

Prior to the failure, a monthly functional test of the HPCS D/G had been performed which required the MODE SELECT SWITCH to be placed in the MAINTENANCE position. Upon completion of the functional test the switch was returned to the AUTO position. The automatic initiation start signal, generated when ESF bus 17AC was inadvertently de-energized while transferring power from ESF transformer 12 to transformer 11, failed to start the HPCS D/G (this occurrence was previously reported by LER 83-182/01 T-0). An investigation of the MODE SELECT SWITCH revealed that all of the contacts of the switch were not fully engaged in the AUTO position.

The switch is designed for a 90 degree rotation between MAINTENANCE and AUTO stops, with a spring loaded roller arm which gives a positive positioning action. It has been determined that the detent wheel, internal to the switch detent mechanism, was installed 45 degrees out of position by the vendor, thus giving a positive detent in the middle of the switch rotation, between MAINTENANCE and AUTO positions, as opposed to a positive detent at each end of the switch rotation.

As a result of the evaluation, the determination was made that the reason for switch functioning prior to the failure was that everytime the switch was operated it was forced into the AUTO or MAINTENANCE position. This overcame the lack of positive positioning and allowed all switch contacts to make, and the switch performed its electrical function.

B. Analysis of Safety Implications

The failure of the HPCS D/G MODE SELECT SWITCH to fully engage all contacts resulted in the HPCS D/G failing to start upon the receipt of an automatic initiation start signal. Therefore the HPCS D/G would not have been able to perform its designed safety function in the event of a LOCA.

5. The date on which the information of such deficiency ... was obtained.

Mississippi Power and Light initially received information of the deviation on November 29, 1983. Material Nonconformance Report (MNCR) 1028-83 was issued on December 1, 1983. An evaluation was performed and the deficiency was reported to Mr. R. Carroll, of your office, as a reportable deficiency for Unit 1 on April 16, 1984. The MP&L "Responsible Officer," Mr. J. P. McGaughy, Jr., has been notified.

6. In the case of the basic component ... the number and location of all such components.

Our investigation has revealed two GE type SBM, Model No. 10BP429, control switches in safety-related applications at GGNS, one each in panels 1H22-P118 and 2H22-P118 for Units 1 and 2 HPCS D/G, respectively. The Unit 2 SBM control switch was inspected and tested and was found to function as designed.

Other diesel generator systems with similiar switches were supplied to:

Hanford 2
Kuo Sheng 1 and 2
Cofrentes
CNV 1 and 2
Laguna Verde 1 and 2

However, none of these switches are known to be defective.

7. The corrective action which has been taken ... the name of the individual ... responsible for the action; and the length of time that has been ... taken to complete the action.

A. Corrective Actions Taken

MNCR 01028-83 was initiated to document the noted deficiency. Maintenance Work Order (MWO) 3B627 was issued to perform the immediate corrective actions to place the Unit 1 HPCS D/G back in service.

The Unit 2 HPCS Diesel Generator GE type SBM control switch was borrowed for use on Unit 1. The switch was inspected and tested and was found to function as designed with positive detent at either end position. The switch was installed in the Unit 1 HPCS D/G panel 1H22-P118 and tested with satisfactory results. The Unit 1 HPCS D/G was then placed back in service on December 2, 1983.

To determine the cause of the failure, the defective switch was disassembled. The positive detent wheel mechanism was found to be mis-oriented by 45 degrees, thus causing the improper positive detent. The switch was then reassembled with the detent wheel mechanism rotated on the shaft an additional 45 degees from the position it had been found in. The switch was then functionally tested and found to have positive detent at either end of the switch as required.

MP&L requested General Electric to determine if they had furnished any other GE type SBM switches under their scope of supply. GE confirmed that no other SBM switches were supplied.

On February 13, 1984, the Unit 1 GE type SBM control switch was returned to the General Electric Company, San Jose, California, per their request, for further investigation of the defect.

B. Responsible Individual

J. P. McGaughy, Jr.
Vice-President, Nuclear
Mississippi Power & Light Co.
Responsible for Unit 1

C. Length of Time to Complete Actions

All corrective actions were complete on April 9, 1984.

8. Any advice related to the deficiency ... that has been, is being, or will be given to purchasers or licensees:

As the deficiency did not originate with MP&L, we have no advice to offer.