



# MISSISSIPPI POWER & LIGHT COMPANY

Helping Build Mississippi

P. O. BOX 1640, JACKSON, MISSISSIPPI 39205

October 10, 1983

JAMES P. McGAUGHY, JR.  
VICE PRESIDENT

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  
License No. NPF-13  
Docket No. 50-416  
File 0260/15525/15526/16694.4  
PRD-83/15, Final Report,  
Brown Boveri Sprague Type 40D  
Capacitor  
AECM-83/0666

On October 7, 1983, Mississippi Power & Light Company notified Ms. L. Watson, of your office, of a Reportable Deficiency at the Grand Gulf Nuclear Station (GGNS). The deficiency concerns possibly defective Sprague Type 40D Capacitors on Brown Boveri Electric (formerly ITE) low voltage circuit breakers equipped with solid state trip devices.

MP&L has determined that this deficiency is reportable under the provisions of 10CFR21 for Unit 1. This deficiency is not applicable to Unit 2 as evidenced in the December 10, 1982, letter from Brown Boveri Electric, Inc. to Mr. Victor Stello, Jr. of the NRC. Attached is the final report.

Yours truly,

RDC  
RDC:dr  
ATTACHMENT

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Mr. J. P. O'Reilly  
NRC

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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-83/15

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

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

This deficiency was also reported under 10CFR21 by Brown Boveri Electric, Inc. to the NRC in their letter dated December 10, 1982.

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

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

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

Supplied to Grand Gulf by Brown Boveri, Inc. (Formerly ITE).

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

A. Description of the Deficiency

Failure of a capacitor in the solid state trip units of low voltage circuit breakers supplied by Brown Boveri (formerly ITE). The suspect trip units have serial numbers below 28300.

B. Analysis of Safety Implications

The subject type of circuit breaker is used at GCNS for all Engineered Safety Feature (ESF) Load Control Center (LCC) breakers. During the initial stages of degradation of the capacitor, the trip unit may cause nuisance LCC breaker trips at load currents below the trip settings. The ultimate failure condition of the capacitor is an open circuit which will cause the trip unit not to respond to an overcurrent condition thus not tripping the LCC breaker. The LCC breaker not tripping on an overcurrent condition will result in severe damage to the LCC breaker or possibly loss of the bus from the resultant overload condition of the bus supply breaker. Since the subject type of circuit breakers are used for all ESF LCC circuits, a loss of any LCC breaker from nuisance trips or damage from overload condition could represent a substantial safety hazard.

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

Mississippi Power and Light received information of the defect on April 19, 1983. We evaluated the deficiency and reported the deficiency to Ms. L. Watson, of your office, as a Reportable Deficiency for Unit 1 on October 7, 1983. 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.

A letter dated December 10, 1982, from Brown Boveri Electric, Inc., to the NRC indicated that low voltage circuit breakers with solid state trip devices were located at the following Nuclear Stations:

Detroit Edison Company	Fermi
Long Island Lighting Company	Shoreham
Duke Power Company	McGuire
Philadelphia Electric Company	Limerick
Indiana & Michigan	Cook
Cincinnati Gas & Electric	Zimmer
Pennsylvania Power & Light	Susquehanna
Southern California Edison	San Onofre Units 2 and 3
Mississippi Power & Light	Grand Gulf Unit #1 only

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

An investigation and inspection performed by Plant Staff determined that fifty (50) of a possible sixty-one (61) trip units have capacitors that could potentially become prematurely defective in service. These trip units have serial numbers below 28300. All fifty of the trip units with the serial number less than 28300 will be replaced with trip units that have modified design features and capacitors which are designed to preclude premature failures.

B. Responsible Individual

C. K. McCoy  
Plant Manager  
Mississippi Power & Light Co.  
Responsible for Unit 1

C. Length of Time to Complete Actions

Replacement of the affected trip units has been started by MP&L (approximately 25 trip units were replaced as of 9/27/83) and will be completed as soon as possible as new trip units are available from Brown-Boveri, without unnecessarily interfering with nuclear heatup. Because the failure condition is reported by the vendor to be detectable through routine testing and by nuisance operations of the breaker during initial states of degradation, the normal preventative maintenance program will detect any problems while awaiting delivery of new trip units from Brown Boveri.

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.