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JOHN S. KEMPER  
VICE-PRESIDENT  
ENGINEERING AND RESEARCH

JUN 24 1983

Mr. Thomas E. Murley, Director  
United States Nuclear Regulatory Commission  
Office of Inspection and Enforcement, Region I  
631 Park Avenue  
King of Prussia, PA 19406

SUBJECT: Significant Deficiency Report #74  
Interim Report on 4kV Switchgear Deficiency  
Limerick Generating Station, Units 1 and 2  
NRC Construction Permits Nos. CPPR-106 & 107

REFERENCE: (1) Telecon of February 25, 1983  
P. K. Pavlides (PECO) to R. Architzel  
and D. Johnson (USNRC)  
(2) Interim report of March 24, 1983  
(3) Interim report of April 28, 1983  
D. D. Duvall (Brown-Boveri Electric, Inc.) to  
Victor Stello, Jr. (USNRC)

FILE: QUAL 2-10-2 (SDR #74)

Dear Mr. Murley:

In compliance with 10CFR50.55(e), enclosed is an interim report on the subject deficiency. One interim report (Reference 2) was previously submitted to your office by PECO whereas the Reference 3 interim report was submitted to Mr. Victor Stello, Jr.'s office in Washington, D.C. by Brown-Boveri Electric, Inc.

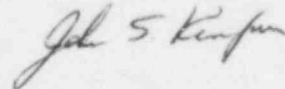
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Our evaluation is continuing and we expect to be able to submit a final report by August 26, 1983.

Sincerely,

A handwritten signature in cursive script, appearing to read "John S. Kempner".

Copy to: Director of Inspection and Enforcement  
United States Nuclear Regulatory Commission  
Washington, D.C. 20555

S. K. Chaudhary, Resident NRC Inspector (Limerick)

DCD/mc

Limerick Generating Station Units 1 & 2  
Interim Significant Deficiency Report #74  
Defect in 4kV Switchgear

June 17, 1983

1.0 INTRODUCTION

This is an interim report regarding a significant deficiency on 4kV switchgear supplied to Limerick Generating Station (LGS) by Brown-Boveri Electric, Inc. (BBE).

Previous information was submitted to the USNRC via interim reports dated March 24 (by PECO) and April 28, 1983 (by BBE).

2.0 DESCRIPTION OF PROBLEM

During preoperational testing of 36 model 5HK200-350 circuit breakers in the LGS 4kV safeguard power system, 3 breakers operated improperly. Following the spring charging cycle, two breakers spontaneously and continuously closed and tripped. A third breaker closed on its own. Upon return to BBE, the three breakers were retested and only the one that inadvertently closed on its own could be confirmed as defective by BBE.

3.0 ANALYSIS OF BREAKER PROBLEM

As described in reference (3), the above defect affecting one breaker was corrected by adding a spring to the close latch in the circuit breaker operating mechanism. During the period from June 1975 to June 1977 when most LGS circuit breakers were manufactured, the spring was intentionally not included in the operating mechanism by BBE. This same basic operating mechanism is used on all BBE HK model circuit breakers including 84-5HK breakers, 52-15HK breakers, 8-4kV ground trucks and 6-15kV ground trucks supplied for LGS. The defect affecting two breakers appears to have been caused by the same spring being omitted, however, we have not yet completed our evaluation of this defect.

4.0 SAFETY IMPLICATIONS

As presented in reference 3, the random nature of the malfunction would make the misoperation unlikely to occur coincident with another malfunction. However, the three failures were found during preoperational tests made on 36 HK circuit breakers in the 4kV safeguard system.

The loss of one of the four 4kV safeguard buses due to a spurious breaker closure would not adversely affect the capability to achieve safe shutdown of the plant. However, the safe operation of Limerick could have been compromised had this condition gone uncorrected if multiple failures were to occur simultaneously.

5.0 CORRECTIVE ACTION

All Brown-Boveri Electric, Inc. model HK circuit breakers and ground trucks will have the spring added to the close latch in the circuit breaker operating mechanism prior to Unit 1 fuel loading. This installation is expected to be 100% complete on June 24, 1983. Spring installation is by BBE instructions.

Evaluation of the continuously opening and closing breakers is continuing. We expect to complete this evaluation by August 26, 1983.

DCD/mc