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MURRAY R. EDELMAN
VICE PRESIDENT
NUCLEAR

September 7, 1984

Mr. James G. Keppler
Regional Administrator, Region III
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

RE: Perry Nuclear Power Plant Docket
Nos. 50-440; 50-441 Deficiency in
Nine 480 Volt AC Circuit Breakers
Supplied by Brown Boveri Electric
[RDC 108(84)]

Dear Mr. Keppler:

This letter serves as our final report pursuant to 10CFR50.55(e) concerning the 480 volt circuit breakers furnished by Brown Boveri Electric, having solid state trip devices containing silicon controlled rectifiers (SCRs) which exhibit excessive leakage current. Our evaluation of this condition was first reported by Mr. P. Martin of The Cleveland Electric Illuminating Company to Mr. J. McCormick-Barger of your office on May 9, 1984, and an interim report was submitted on June 8, 1984.

This report contains a description of the deficiency, an analysis of safety implication, and the planned corrective action.

Description of Deficiency

Brown Boveri Electric (BPE) supplied two hundred forty-eight 480 volt circuit breakers to the Perry Nuclear Power Plant (PNPP), Units 1 and 2. On April 18, 1984, BBE filed a 10CFR21 report with the Nuclear Regulatory Commission concerning SCRs in the BBE solid state devices of the K-600S through K-2000S, K-3000S, and K-4000S series of circuit breakers used in Class 1E application at the Limerick Generating Station. These solid state trip devices were

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exhibiting spurious tripping of the circuit breakers under testing by BBE. On April 26, 1984, BBE informed PNPP via a letter that PNPP was one of the facilities having solid state trip devices located in the type K-600s through K-2000S, K-3000S, and K-4000S circuit breakers. As a result of the testing by BBE on the solid state trip devices, they developed an acceptance test of the output circuits for breakers in service, which was an attachment to the 10CFR21 report. During late-May 1984, the recommended test was performed on site in accordance with the BBE criteria to determine if the two hundred forty-eight installed solid state trip devices exhibited excessive leakage.

Nine solid state trip devices, eight installed on nonsafety-related circuit breakers and one on a safety-related circuit breaker designated as a "spare," were found to have leakage values which warranted their replacement. The solid state trip devices located in the remaining 480 volt circuit breakers were found acceptable.

Analysis of Safety Implication

The solid state trip device is provided to ensure the interruption of power on an excessive value of current or on an excessive rate of current rise, thus indicating a fault in the apparatus being protected. Excessive leakage currents in the solid state trip device could prematurely cause the circuit breakers to open under load conditions, thus rendering the connected apparatus as inoperative.

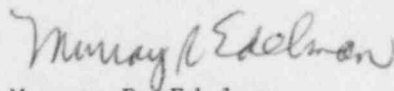
Corrective Action

Nonconformance Reports NDS 0045 and NDS 0046 were issued for Units 1 and 2 respectively, to document our corrective action.

Presently, PNPP has the procedure in place, and is procuring from BBE the necessary solid state trip devices for replacement. This activity is planned to be accomplished by the end of October 30, 1984. Verification and close-out of the referenced NRs is to be completed by November 13, 1984.

Please call if there are any additional questions.

Sincerely,



Murray R. Edelman
Vice President
Nuclear Group

MRE:nb

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cc: Mr. J. A. Grobe
USNRC, Site Office

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