Duquesne Light

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2NRC-7-087

April 20, 1987

United States Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, PA 19406

ATTENTION: Dr. Thomas E. Murley
Administrator

SUBJECT: Beaver Valley Power Station - Unit No. 2
Docket No. 50-412
Automatic Closing of Brown Boveri/ITE 4KV Category IE Circuit Breakers
Potential Significant Deficiency Report 87-06

Gentlemen:

This Potentially Reportable Significant Deficiency Report is being submitted pursuant to the requirements of 10CFR50.55(e). It is anticipated that no additional reports will be required.

DUQUESNE LIGHT COMPANY

By J. J. Carey
J. J. Carey
Sr. Vice President

LMR/jr
NRC/LMR/SDR/8706
Attachment
AR/NAR

cc: Mr. P. Tam, Project Manager (w/a)
Mr. J. M. Taylor, Director (3) (w/a)
Mr. J. Beall, Sr. Resident Inspector (w/a)
Mr. L. Prividy, NRC Resident Inspector (w/a)
INPO Records Center (w/a)
NRC Document Control Desk (w/a)

IE-27
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IE 27

ATTACHMENT

1. Summary

With 4KV breaker 4KV*E10 racked onto the bus, 125 VDC control power was applied, the springs charged and the breaker immediately closed and opened several times before the control power could be turned off.

Thirty-two (32) Brown Boveri/ITE Category IE 4KV Breakers Type 5HK-350 ITE have the potential to experience this same condition.

2. Immediate Action Taken

Non-conformance and Disposition Report (N&D) 12461 was written to have the breaker sent to the vendor, Brown Boveri Company (BBC), to determine the cause of the closure.

Mr. L. M. Rabenau, Lead Compliance Engineer, Beaver Valley Power Station Unit No. 2, contacted Mr. Dave Limroth, NRC Region I, of this concern on March 20, 1987.

3. Description of Deficiency

When 125VDC control power was applied to the breaker's control circuit, the closing spring charged and the breaker closed immediately. It was determined by field testing that the closing coil was not being energized. Subsequently, the breaker was sent to the vendor for further investigation.

The cause of the breaker closing and opening was attributed to the shock resulting from the end of the closing cycle. When the closing spring completes its charging cycle, the close latch roller hits against the close latch. The resulting shock from the latch and associated linkages is such that the latch roller does not latch. This starts the charging cycle over again.

While breaker 4KV*E10 was at the BBC service division in Monroeville, PA, the vendor identified an April 28, 1983 letter from their Switchgear Systems Division to the NRC concerning the same problem. This letter was a follow-up to the Philadelphia Electric Company, Limroth plant filing of a 10CFR50.55(e) report. BBC identified this same problem and the subsequent fix.

4. Analysis of Safety Implication

Inadvertant operation of the 4KV Category IE breakers could adversely impact the safe operation of the plant.

5. Corrective Action to Resolve the Deficiency

All of the Brown Boveri/ITE Category IE 4KV breakers Type 5HK have been sent to the vendor for the addition of "anti-shock springs". The "anti-shock springs" are added to the close latch in the circuit breaker operating mechanism. The addition of this spring forces the clearances in the close latch and associated linkages to be taken up in one direction. This reduces the shock from the latch and linkages so that when the close latch roller, which is part of the cam assembly, is driven by the closing springs at the end of the charging cycle hits against the close latch, the latch is held and does not slip.

6. Additional Report

No Additional Reports are expected.