

THE CINCINNATI GAS & ELECTRIC COMPANY



CINCINNATI, OHIO 45201

April 29, 1983
LOZ-83-0021

J. WILLIAMS, JR.
SENIOR VICE PRESIDENT
NUCLEAR OPERATIONS

Docket No. 50-358

U.S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Attention: Mr. J.G. Keppler
Regional Administrator

Gentlemen:

RE: WM. H. ZIMMER NUCLEAR POWER STATION - UNIT 1
10CFR50.55(e), ITEM E-39, BROWN BOVERI 125V DC
CONTROL DEVICE FAILURE ON 6.9KV AND 4.16DV SWITCHGEAR
W.O. 57300, JOB E-5590, FILE NO. 956C, E-39

This letter constitutes an interim report concerning the subject condition initially reported to the Commission on February 2, 1983 as a potentially reportable deficiency under the requirements of 10CFR50.55(e).

As stated in our previous report, QA-1723, dated February 23, 1983, a failed 125V DC control device was returned to Brown Boveri Electric, Inc. (BBE) for inspection and analysis. The BBE Engineering analysis of this control device failure (Attachment 1) states that the cause for breaking of the contact carrier was due to excessive overtravel of the operating lever. This overtravel overdrives the limit switch crank resulting in breakage of the contact carrier. Failure of these contacts can affect the electrical closing function of the breaker, but it has no affect on the manual closing and electrical and manual tripping of the breaker.

BBE has concluded that this condition could exist on circuit breakers manufactured between March, 1974 and June, 1978 only, and has issued instruction bulletin, IB-8303 (Attachment 2), for inspecting, adjusting and/or replacing the limit switch stops. BBE has also notified the NRC of this potential problem in a letter to Mr. Victor Stello, Jr., dated March 22, 1983. An enclosure to this letter identifies applications of these circuit breakers at other nuclear facilities.

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MAY 5 1983

107

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To correct the subject condition at Zimmer, all BBE 4.16KV circuit breakers will be inspected and adjusted per IB-8303. Where proper adjustment cannot be obtained, replacement shims and/or lever stops will be installed.

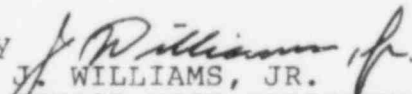
Work Requests will be written and submitted to obtain approval to inspect, clean, and adjust the circuit breakers. Additional Work Requests will be prepared to install the shim kits and revised lever arms in those circuit breakers which cannot be adjusted per IB-8303.

Completion of these corrective actions is contingent upon the NRC approval of the Work Requests or release of the NRC November 12, 1982 "Order to Show Cause and Order Immediately Suspending Construction". A follow-up report will be submitted by August 15, 1983.

We trust the above will be found acceptable as an interim report under 10CFR50.55(e).

Very truly yours,

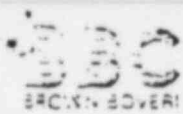
THE CINCINNATI GAS & ELECTRIC COMPANY

By 
J. WILLIAMS, JR.
SENIOR VICE PRESIDENT

RNT/WPC/cse

Attachments

cc: NRC Office of Inspection & Enforcement
Washington, D.C. 20555
NRC Senior Resident Inspector
ATTN: W.F. Christianson
NRC Zimmer Project Inspector
Region III



Brown Boveri Electric, Inc.

Manufacturer of I-T-E Electrical Power Equipment

ANALYSIS OF HK CONTROL DEVICE (LIMIT SWITCH) FAILURE (HK BREAKER TYPES - 7.5KV THRU 15KV, 500 THRU 750 MVA; 5HK350, 3000) ALL HKV BREAKERS

BACKGROUND

One defective HK control device, BBC part number 191921-T6, was returned from the Cincinnati Gas and Electric Co. to the BBC production plant in Columbia, South Carolina for evaluation. The device was returned on BBC RGA B10112, Material Non-conformance Report 101150 dated 2-10-83.

NATURE OF FAILURE

When the failed device was examined at Columbia, the plastic contact carrier, containing the three limit switch contacts (2-LSb contacts, 1-LSa contact), was found broken. Re: typical HK wiring diagram 196270 attached. The most common reason for breaking the carrier is due to excessive overtravel of the lever. See IB-8303 attached, Fig. 1. This overtravel overdrives the limit switch crank which causes breakage of the carrier. The overtravel of the lever is limited by the lever stop and as long as the dim "B", Fig. 2, is not greater than 1/16 inch, breakage should not occur. Tests conducted in July of 1978 have substantiated this.

AFFECT OF FAILURE ON BREAKER OPERATION

Failure of these contacts can affect the electrical closing function of the breaker, i.e., the closing springs may not charge electrically and if the springs are charged electrically or mechanically, the breaker may not be able to close electrically. The failure of the limit switch contacts does not affect the manual closing of the breaker and does not affect electrical or manual tripping of the breaker.

CORRECTIVE ACTION

Instruction Bulletin - The dim. "B", IB-8303 Fig. 2, has always been considered to be a factory check and therefore the Instruction Bulletin has not addressed dim. "B". However, due to its importance, dim. "B" will be added to the general Instruction Bulletin, IB 6.2.2.7-1 (8.2.7.4).

Breakers in the field - IB-8303 has been issued for the inspection and/or correction of breaker in the field for obtaining dim. "B". This bulletin also checks out and corrects for dim. "A", however dim. "A" has no affect on the overtravel of the contact carrier.

ANALYSIS OF HK CONTROL DEVICE (LIMIT SWITCH) FAILURE
(HK BREAKER TYPES - 7.5KV THRU 15KV, 500 THRU 750 MVA; 5HK350, 3000)
ALL HKV BREAKERS

Factory specification records indicate that breakers manufactured between March 1974 and July 1978, inclusive, are subject to exceeding dim."B" limits and therefore should be checked per IB-8303.

CONCLUSION

A broken limit switch carrier will probably cause the electrical close to be inoperative but it has no affect on manual closing or electrical or manual tripping. Corrective action should be taken as outlined above.

Prepared by:

D. H. Lewis
D. H. Lewis

Approved by:

L. H. Schmidt
L. H. Schmidt

Date:

2-22-83

Date:

2-22-83

Attached

IB-8303
196270

HR. WIRING DIAGRAM TEST CIRCUIT BREAKER



I-T-E CIRCUIT BREAKER COMPANY

196270

REV. 0

BY: S. O. 951-9105

DATE: 7-1-67

CHD. DATE: 7-1-67

APPROV. DATE: 7-15-67

SCALE: 1/4"

STANDARD TOLERANCE INFO. ON DR. 52016
TOLERANCES - UNLESS OTHERWISE SPECIFIED -

DEC. 8

FRAC. 8

REAR VIEW
of
SECONDARY
DISCONNECTS

6> <5
9> <7
11> <13
15> <14
04> <03
02> <01

NOTES:

1. REFER TO I-T-E DRAWING NO. 188571 FOR LEGEND.
2. REFER TO I-T-E DRAWING NO. 188572 FOR OPERATING SEQUENCE.

TRAVEL
RECORDER
(200 A MIN
1000 A MAX)

