

LICENSEE EVENT REPORT (LER)

Facility Name (1) Braidwood, Unit 2										Docket Number (2) 0 5 0 0 0 4 5 7					Page (3) 1 of 0 2																																																								
Title (4) Reactor Trip Due to Phase B Overcurrent Protective Relay CO-7 Defective Current Switch																																																																							
Event Date (5)			LER Number (6)					Report Date (7)			Other Facilities Involved (8)																																																												
Month	Day	Year	Year	Sequential Number	Revision Number	Month	Day	Year	Facility Names		Docket Number(s)																																																												
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OPERATING MODE (9)			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)																																																																				
POWER LEVEL (10) 0 4 8			20.402(b)			20.405(c)			<input checked="" type="checkbox"/> 50.73(a)(2)(iv)			73.71(b)																																																											
			20.405(a)(1)(i)			50.36(c)(1)			50.73(a)(2)(v)			73.71(c)																																																											
			20.405(a)(1)(ii)			50.36(c)(2)			50.73(a)(2)(vii)			Other (Specify																																																											
			20.405(a)(1)(iii)			50.73(a)(2)(i)			50.73(a)(2)(viii)(A)			in Abstract																																																											
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20.405(a)(1)(v)			50.73(a)(2)(iii)			50.73(a)(2)(x)			Text)																																																														
<p align="center">LICENSEE CONTACT FOR THIS LER (12)</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td colspan="10">Name</td> <td colspan="8">TELEPHONE NUMBER</td> </tr> <tr> <td colspan="10">Harold L. Hill, Technical Staff Engineer</td> <td colspan="2">AREA CODE</td> <td colspan="6">8 1 5 4 5 8 - 2 8 0 1</td> </tr> <tr> <td colspan="10">Ext. 2333</td> <td colspan="8"></td> </tr> </table>																		Name										TELEPHONE NUMBER								Harold L. Hill, Technical Staff Engineer										AREA CODE		8 1 5 4 5 8 - 2 8 0 1						Ext. 2333																	
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																																																																							
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPD	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPD																																																														
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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)																																																																							

At 1212 on June 20, 1988, preparations in progress to take current readings on Phase B overcurrent protective relay CO-7 on Unit Auxiliary Transformer (UAT) 241-2. A shorting switch on the relay casing was intentionally opened as part of the preparations. This resulted in a voltage spike and actuated the instantaneous overcurrent protective relay, 5I. This actuated lockout relay 86G2A which isolated UAT 241-2 from the grid and tripped the Unit 2 Main Generator. This initiated a turbine and reactor trip. The turbine main feedwater pump tripped which resulted in a Lo-Lo steam generator level. The Auxiliary Feedwater Pumps (AF) automatically started to restore steam generator level. At 1225, the startup feedwater pump was manually started. At 1229, feedwater flow was restored to the normal range. At 1236, the plant was stabilized. At 1236, the AF pumps were manually tripped. At 1242, the protective relays were reset. The root cause of this event is attributed to a defective current test switch on the B phase of the CO-7 overcurrent relay. The defective test switch on the Phase B CO-7 relay case was replaced and the integrity of the current circuitry was re-verified. This is considered an isolated event, no further corrective action is proposed. No previous occurrences.

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TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [xx]														

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: Braidwood 2 ; Event Date: June 20, 1988 ; Event Time: 1212

MODE: 1 - Power Operation ; Rx Power: 47% ; RCS [AB] Temperature/Pressure: 569 Degrees F/2235 psig

B. DESCRIPTION OF EVENT:

There were no systems or components inoperable at the beginning of the event which contributed to the severity of the event.

At 1212 on June 20, 1988, Project Operational Analysis Department was performing an in-service protective relay test. Preparations were being made to take current readings on Phase B overcurrent protective relay CO-7 on Unit Auxiliary Transformer (UAT) [EA] 241-2. A shorting switch on the relay casing was intentionally opened as part of the preparations. Opening the shorting switch on the relay casing caused a voltage spike and actuated the instantaneous overcurrent protective relay, SI. This relay actuated lockout relay 86G2A which isolated UAT 241-2 from the grid and tripped the Unit 2 Main Generator.

Alarm window 18C05 on Main Control Panel 2PM01J annunciated indicating that UAT 241-2 had tripped. A turbine and reactor trip followed. Following the reactor trip, the turbine main feedwater pump tripped which resulted in a 10-10 steam generator level [JB]. The 2A and 2B Auxiliary Feedwater Pumps (AF) [BA] automatically started as designed to restore steam generator level.

At 1225 on June 20, 1988, the Startup Feedwater Pump (FW) [SJ], 2FW02FP, was manually started. At 1229, feedwater flow was restored to the normal range. At 1236, the plant was stabilized. At 1236, the AF pumps were manually tripped. At 1242, the protective relays were reset.

Operator action neither increased nor decreased the severity of the event. All systems operated as designed in response to this event.

The appropriate NRC notification via the ENS Phone System was made at 1331 on June 20, 1988, pursuant to 10CFR50.72(B)(2)(II).

This event is being reported pursuant to 10CFR50.73(A)(2)(IV) - any event or condition that resulted in manual or automatic actuation of any engineered safety feature, including the reactor protection system.

C. CAUSE OF EVENT:

The root cause of this event is attributed to a defective current test switch on the B phase of the CO-7 overcurrent relay. When the test switch was opened, a loss of continuity was established due to a loose screw in the test switch. This loss of continuity was seen as an overcurrent condition on the grid. The protective relay actuated to isolate the transformer from the grid as designed to prevent transformer damage.

D. SAFETY ANALYSIS:

This event had no effect on plant or public safety. The overcurrent relay performed its design function, and all systems performed as designed. Under worst conditions of the unit operating at 100% power, the result would have been the same as in this event.

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TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [xx]

E. CORRECTIVE ACTIONS:

The defective test switch on the Phase B CO-7 relay case was replaced and the integrity of the current circuit was re-verified after the replacement. As this is considered an isolated event, no further corrective action is considered necessary.

F. PREVIOUS OCCURRENCES:

There have been no previous occurrences of a reactor trip as a result of a faulty test switch in a transformer protective relay.

G. COMPONENT FAILURE DATA:

<u>MANUFACTURER</u>	<u>NOMENCLATURE</u>	<u>MODEL NUMBER</u>	<u>MFG PART NUMBER</u>
1) Westinghouse	CO-7 Relay Case Test Switch	FT11	53C9059G141

2) Results of NPRDS Search

No similar occurrences found



Commonwealth Edison
Braidwood Nuclear Power Station
Route #1, Box 84
Braceville, Illinois 60407
Telephone 815/458-2801

BW/88-755

July 15, 1988

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Dear Sir:

The enclosed Licensee Event Report from Braidwood Generating Station is being transmitted to you in accordance with the requirements of 10CFR50.73(a)(2) (IV) which requires a 30 day written report.

This report is number 88-012-00; Docket No. 50-457.

Very truly yours,

R. E. Querio
Station Manager
Braidwood Nuclear Station

REQ/PMB/jab
(7126z)

Enclosure: Licensee Event Report No. 88-012-00

cc: NRC Region III Administrator
NRC Resident Inspector
INPO Record Center
CECo Distribution List

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