



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

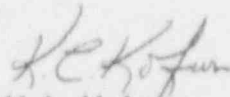
December 9, 1992
BW/92-0615

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 with the requirement of 10CFR50.73(a)(2)(iv), which requires a 30-day written report.

This report is number 92-007-00, Docket No. 50-456.


K. L. Kofron
Station Manager
Braidwood Station

KLK/AJS/dla
675ZD85G

Encl: Licensee Event Report No. 92-007-00

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

150061

9212150169 921209
PDR ADOCK 05000457
S PDR

IE22
11

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)
Braidwood 2DOCKET NUMBER (2)
05000457PAGE (3)
1 OF 4

TITLE (4)

Reactor Trip Due Main Generator Neutral Ground Back-up Relay Trip

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 NAME	DOCKET NUMBER
11	14	92	92	-- 007 --	00	12	09	92	FACILITY NAME	DOCKET NUMBER
										05000
										05000
OPERATING MODE (9)		1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10)		100	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	
			20.405(a)(1)(iii)		50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		(Specify in Abstract below and in Text, NRC Form 366A)	
			20.405(a)(1)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)			
			20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)			

LICENSEE CONTACT FOR THIS LER (12)

NAME
G. Sharpe, Technical Staff Ext. 2544TELEPHONE NUMBER (Include Area Code)
(815) 458-2801

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs
X	HBC	GENERA	B569	Y					

SUPPLEMENTAL REPORT EXPECTED (14)

YES

(If yes, complete EXPECTED SUBMISSION DATE).

☒ NOEXPECTED
SUBMISSION
DATE (15)

MONTH

DAY

YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)(16)

On November 14, 1991 Unit 2 was in Mode 1 at 100% power. At 18:52 an oscillograph operation alarm came in followed by a main generator neutral ground back-up relay trip which subsequently tripped the turbine resulting in a reactor trip. The unit trip was the result of a failed potential transformer secondary fuse. The failed fuse was analyzed. The analysis indicated mechanical failure of the fuse. The potential transformer secondary fuses were replaced with fuses less susceptible to damage. Engineering approval was also received for the fuse replacement. As a conservative measure, all primary potential transformer fuses were replaced to address the possibility of intermittent fuse actuation. A megger was also performed on the generator and the values were found to be acceptable. Additionally, the fuse contacts on the potential transformers were cleaned and adjusted. There has been a previous similar occurrence.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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FACILITY NAME (1)		DOCKET NUMBER (2)		LER NUMBER (6)			PAGE (3)
Braidwood 2		05000457		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 4
				92	-- 007 --	00	

TEXT (if more space is required, use additional copies of NRC Form 366A) (17)

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: Braidwood 2; Event Date: November 14, 1992; Event Time: 1852
Mode: 1 - Power Operation; Rx Power: 100%;
RCS [AB] Temperature/Pressure: NOT / NOP;

B. DESCRIPTION OF EVENT:

There was no equipment or systems inoperable at the beginning of the event that contributed to the severity of the event.

On November 14, 1991 Unit 2 was in Mode 1 at 100% power. At 18:52 an oscillograph operation alarm came in followed by a main generator neutral ground back-up relay trip, which subsequently tripped the turbine resulting in a reactor trip. All plant systems responded normally to the event.

The following relay targets were up at Relay and Metering Panel 2PA23J:

- 1) Generator Neutral Ground Back-up Relay PR12-659BG2.
- 2) Generator Voltage Balance Relay PR5-660G2.
- 3) MPT 2E Generator Start-up Neutral Ground Relay PR16-850NMT 2E.

A voltage balance relay actuation can sometimes indicate a blown potential transformer fuse. The relay senses between the three phases and when a potential transformer fuse blows, the relay will see an unbalanced voltage and actuate. A review of the Sequence of Events Recorder (SER) determined that this was a result of the event and not the cause of the event.

The MPT generator start-up neutral ground relay is only involved in the circuit during start-up and thus was eliminated as a contributing cause of the event.

The generator neutral ground back-up relay senses from the potential transformer circuit. This is in the same circuit as the voltage balance relay except this relay senses from the broken delta side of the 120:120 volt potential transformer.

At 2103, November 15, 1992, a Unit 2 reactor startup was commenced.

At 2217, the startup was completed.

The appropriate Emergency Notification System (ENS) notification was made at 1958, on November 14, 1992 CDST pursuant to 10CFR50.72(b)(2)(ii).

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TEXT CONTINUATION

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Braidwood 2		05000457		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 OF 4
				92	-- 007 --	00	

TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

C. CAUSE OF EVENT:

The unit trip was the result of a failed potential transformer secondary fuse which caused the generator neutral ground back-up relay to actuate, which initiated the trip. A review of the switchyard oscillograph indicated zero volts across the generator neutral resistor which means an actual fault on the generator did not occur. All potential transformer fuses were checked and one Limitron KTN-R-10 ten amp secondary potential transformer fuse was found to be failed. The failed fuse was sent to the Commonwealth Edison System Materials Analysis Department and the failure mode was found to be mechanical failure of the fuse. The potential transformer secondary fuses were replaced with Bussmann NON-10 ten amp fuses. The fuses were changed to this type after it was found that this type of fuse is utilized in Unit 1 and is mechanically more durable and less susceptible to damage. Engineering approval was received for the fuse replacement. As a conservative measure, all primary potential transformer fuses were replaced to address the possibility of intermittent fuse actuation.

D. SAFETY ANALYSIS:

This event had no effect on plant or public safety since the engineered safety feature operated as designed. The generator neutral ground backup relay actuated and tripped the generator. The generator trip caused a turbine trip. The turbine trip caused the reactor trip. Redundant trains of reactor protection RP (JG) and engineered safety features (EF) (JG) were operable, available, and effective in performing their design functions.

This event occurred at worst case condition of 100% power.

E. CORRECTIVE ACTIONS:

In addition to replacement of all potential transformer fuses (12 total), the affected circuit was monitored with a digital fault recorder. No further anomalies were found. A megger was also performed on the generator and the values were found to be acceptable. Additionally, the fuse contacts on the potential transformers were cleaned and adjusted. As a result of LER 457-91-006, a plant modification is planned to improve the reliability of the generator neutral ground circuitry. This modification will be installed under modification number M20-1(2)-91-013.

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TEXT CONTINUATION

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Braidwood 2	05000457	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER
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Text (if more space is required, use additional copies of NRC Form 366a) (17)

F. PREVIOUS OCCURRENCES:

There has been a previous similar occurrence.

DVR 20-2-91-037 / LER 91-006; Generator Trip Caused By spurious Actuation of Neutral Ground Relay

G. COMPONENT FAILURE DATA:

MANUFACTURER	NOMENCLATURE
Limitron	Fuse

MODEL NUMBER / MFG PART NUMBER
KTN-R-10