LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1)	Docket Number (2)	Page (3)
Braidwood Unit 1	0 5 0 0 0 4 5 6	1 of 0 3

Title (4)

Reactor Trip Due To Spurious Loss of Output Voltage on Instrument Inverter 112

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)
0 2	0 6	8 9	8 9	---	0 0 1	0 1	0 3	0 7	8 9	NONE	0 5 0 0 0 / / /
											0 5 0 0 0 / / /

OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)								
3	___ 20.402(b)	___ 20.405(c)	X 50.73(a)(2)(iv)	___ 73.71(b)
POWER LEVEL (10) 0 0 0	___ 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 in Abstract below and in Text)
	___ 20.405(a)(1)(iii)	___ 50.73(a)(2)(i)	___ 50.73(a)(2)(viii)(A)	
	___ 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	TELEPHONE NUMBER
	AREA CODE
Joe Doyle, Technical Staff Engineer, Ext. 2660	8 1 5 4 5 8 - 2 8 0 1

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)

		Expected Submission Date (15)	Month	Day	Year
___ Yes (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

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

At 1322 on February 16, 1989 Unit 1 was in Mode 3 with all the control rods inserted and the Reactor Trip Breakers closed. A momentary loss of output voltage on Instrument Inverter 112 caused a Reactor Trip Signal due to Intermediate Range High Flux Bistable from Channel N36 reverting to its ESF safe configuration. The opening of the Reactor Trip Breakers coincident with RCS Average Temperature less than 564 degrees fahrenheit caused a Feedwater Isolation Signal. At 1323 the Feedwater Isolation Signal was reset and normal feedwater flow was reestablished. Personnel in the area at the time of the event were independently interviewed, their activities did not place them in contact with Instrument Inverter 112 physically or electrically. The momentary Loss of Instrument Inverter output voltage is still under investigation. The Unit 1 instrument inverters are scheduled for an inspection during the next outage of opportunity. This report will be supplemented should the root cause be determined. There have been previous occurrences of reactor trips involving instrument inverters, however the previous events were not the result of spurious perturbations on the inverter. The corrective actions for those events were implemented addressing both root and contributing causes. Previous corrective actions are not applicable to this event.

IE22

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6) Year	Sequential Number	Revision Number	Page (3)
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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 1; Event Date: February 6, 1989; Event Time: 1322;

Mode: 3 - Hot Standby; Rx Power: 0%;

RCS [AB] Temperature/Pressure: 553 degrees F/2235 psig

B. DESCRIPTION OF EVENT:

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

t 1322 on February 16, 1989 Unit 1 was in Mode 3 with all the control rods inserted and the Reactor Trip Breakers osed. A momentary loss of output voltage on Instrument Inverter 112 caused a Reactor Trip Signal due to Intermediate Range High Flux bistable from Channel N36 reverting to its ESF safe configuration on the loss of power. The opening of the Reactor Trip Breakers coincident with RCS Average Temperature Less than 564 degrees fahrenheit caused a Feedwater Isolation Signal. At 1323 the Feedwater Isolation Signal was reset and normal feedwater flow was reestablished.

The appropriate NRC notification via the ENS phone system was made at 1415 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:

Prior to the event a ventilation damper that controls room temperature had failed. This failure resulted in the electrolyte temperature on 125 vdc batter 112 decreasing below its required minimum temperature. Electrical Maintenance installed a temporary electric heater as a compensatory measure to recover temperature until the damper was declared operable.

The cause of the reactor trip signal being generated was the Nuclear Instrumentation System (NIS) (IG) Intermediate Range High Flux bistable for channel N36 reverting to its ESF safe configuration on a momentary loss of power.

Operating, Electrical Maintenance, and Technical Staff personnel were in the area of Instrument Inverter 112 at the time of the occurrence. Operating was monitoring 125 vdc battery 112 electrolyte temperature, Electrical Maintenance and Technical Staff personnel were working on the failed ventilation damper.

Personnel in the area at the time of the event were independently interviewed. The results of the interviews concluded that the activities in progress at the time did not place them in contact with Instrument Inverter 112 physically or electrically.

Based on a review of the sequence of events recorder, the duration of the inverter loss of output voltage was 0.211 seconds. This short time frame precludes the possibility of personnel error relative to switch operation or mispositioning.

The momentary loss of output voltage has not been repeated nor is there any history or voltage perturbations on the Instrument Inverters at Braidwood.

D. SAFETY ANALYSIS:

This event had no effect on the safety of the plant or public as the unit was in Hot Standby at the time of the occurrence, all systems operated as designed and the plant remained in a stable condition.

The worst case condition is unit operation prior to the manual block of the intermediate range high flux trip. This is procedurally directed at approximately 16% reactor power. A reactor trip would have occurred as it did in this occurrence.

Three other instrument busses connected to their associated inverters were operable and available to provide redundant instrumentation. The instruments and controls powered from Inverter 112 have redundant power supplies, multiple coincidence logics, or otherwise fail to their ESF safe configurations, as did the Intermediate Range High Flux Trip in this event.

E. CORRECTIVE ACTIONS:

Immediate corrective action were to reset the feedwater isolation reestablish normal feedwater flow to the steam generators, and initiate an investigation into the cause of the event.,

The root cause of the momentary loss of instrument inverter output voltage is still under investigation. The Unit 1 instrument inverters are scheduled for an inspection during the next outage of opportunity. The results of this inspection will be tracked to completion by action item 456-200-89-02501. This report will be supplemented should the root cause be determined.

F. PREVIOUS OCCURRENCES:

There have been previous occurrences of reactor trips involving instrument inverters, however the previous events were not the result of spurious perturbations on the inverter. The corrective actions for those events were implemented addressing both root and contributing causes. Previous corrective actions are not applicable to this event.

G. COMPONENT FAILURE DATA:

This event was not the result of component failure, nor did any components fail as a result of this event.

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

BW/89-354

March 15, 1989

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 as a Supplemental Report to LER 89-001-00.

This report is number 89-001-01; Docket No. 50-456.

Very truly yours,

R. E. Querio
Station Manager
Braidwood Nuclear Station

REQ/AJS/jfe
(3128z)

Enclosure: Licensee Event Report No. 89-001-01

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

IE22
1/1

SUPPLEMENT TO DVR

APPROVED
JUL 23 1986
BRAIDWOOD ON-SITE REVIEW

DVR NO.

STA		UNIT		YEAR		NO.
D	-	20	-	1	-	89	-	025

PART 1 TITLE OF EVENT

Reactor Trip due to Spurious Loss of Output Voltage on Instrument Inverter 112.

OCCURRED

02-06-89 (DATE) 1322 (TIME)

REASON FOR SUPPLEMENTAL REPORT

This Supplement Report is being issued to correct the sequential LER number.

PART 2

ACCEPTANCE BY STATION REVIEW

DATE 3/13/89 3/13/89 3/14/89

SUPPLEMENTAL REPORT APPROVED AND AUTHORIZED FOR DISTRIBUTION

STATION MANAGER

Date 3/17/89

(Final)

7048P(061086)
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