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

April 27, 1990
BW/90-0458

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 90-004-00; Docket No. 50-456.

Very truly yours,

R. E. Querio
Station Manager
Braidwood Nuclear Station

REQ/JDW/jfe
(7126z)

Enclosure: Licensee Event Report No. 90-004-00

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

IE22
1/1

LICENSEE EVENT REPORT (LER)

Form Rev 2.0

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

Title (4) Containment Ventilation Isolation on Unit 1 and 2 Due to Momentary Loss of Voltage to Area Radiation Monitors.

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)
									Braidwood 2	0 5 0 0 0 4 5 7
0 3	2 8	9 0	9 0	0 0 4	0 0	0 4	2 6	9 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)			
1		___ 20.402(b)	___ 20.405(c)	X 50.73(a)(2)(iv)	___ 73.71(b)
POWER LEVEL (10)	0 9 9	___ 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
Richard Roundtree Tech Staff Engineer Ext. 2487	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 0339 on March 28, 1990 a Containment Ventilation Isolation Actuation occurred on Unit 1 and Unit 2. This isolated a containment release which was in progress on Unit 2. All other components were in their ESF required position prior to the event. At 0348 the signals were reset. An examination of the oscillograph output identified that the Phase B Voltage at Braidwood Switchyard Red Bus 9 Pot dipped from 200KV to 108 KV phase to ground voltage. The dip lasted 0.06 sec before the protective relaying isolated the fault. The cause of the event was a perturbation of the 345 KV transmission system as a result of the Phase B insulator failure at LaSalle County Nuclear Power Station Line 0103. The monitors sensed a voltage condition below the 90 volt power fail setpoint. On Loss of power the monitors revert to their interlock condition. Based on discussions with the vendor representative, a 50 milli-second voltage drop of the magnitude experienced in this event can cause an interlock on power loss. The power failure voltage setting for radiation monitors has been previously evaluated. Based on this evaluation, 90 Volts is the lowest setting that assures all of the power fail functions perform as designed on loss of power to the monitor. Previous corrective actions are not applicable to this event.

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: Braidwood 1; Event Date: March 28, 1990; Event Time: 0339;

Mode: 1 - Power Operation; Rx Power: 99%;

RCS [AB] Temperature/Pressure: NOT/NOP;

Braidwood 2; Mode 6 - Refueling

RCS Temperature/Pressure: Ambient/Atmospheric

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 0339 on March 28, 1990 a Containment Ventilation Isolation Actuations (EF) [JE] occurred simultaneously on Unit 1 and Unit 2. This isolated a containment release which was in progress on Unit 2. All other components were in their ESF required position prior to the event. The containment ventilation isolation signals were due to a perturbation on the grid caused by a trip on Unit 1 at LaSalle County Nuclear Power Station.

At 0348 the containment ventilation isolation actuation signals were reset.

During the event investigation it was identified that the RM-11 trending history contained a power fail cue on the daily trend for the Unit 2 Containment Bldg. Fuel incident monitors 2RT-AR011/12 (AR) [IL]. In addition, monitors 1RT-AR011/12, and 0RT-AR055/56 were affected by the power perturbation. A check of the alarm history on the RM-11 showed that no other monitors were affected by the line trip at LaSalle Station. Six monitors in all felt the perturbation.

An examination of the oscillograph output verified that a Phase B Insulator failure at LaSalle (Line 0103) caused the Phase B Voltage at Braidwood Switchyard Red Bus 9 Pot to dip from 200 KV to 108 KV phase to ground voltage. The dip in voltage lasted 0.06 sec before the protective relaying isolated the fault. The perturbation was also experienced on the Switchyard Blue Bus which was the power supply for the Unit 1 and Unit 0 Area Radiation Monitors that were affected.

The appropriate NRC notification via the ENS phone system was made at 0352 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 the event was a perturbation of the 345 KV transmission system as a result of the Phase B insulator failure at LaSalle County Nuclear Power Station Line 0103. The Containment Fuel Incident monitor sensed an undervoltage condition, below the 90 volt power fail setpoint, that momentarily placed the monitor in the power fail mode of operation as designed. This caused the generation of the Containment Ventilation Isolation Signal.

D. SAFETY ANALYSIS:

This event had no effect on the safety of the plant or the public. All systems operated as designed.

The monitors reverted to their ESF safe configuration on loss of power. The appropriate actuations occurred as designed.

The worst case condition would be an extended loss of power to a radiation monitor providing input to ESF actuation functions. The radiation monitoring and ESF input logic are designed so that on loss of power to the monitor its ESF input reverts to the tripped condition as was the case in this event. This is enveloped in Section 7 of the Updated Final Safety Analysis Report (UFSAR).

E. CORRECTIVE ACTIONS:

The power cabling from each of the Motor Control Centers (MCC) was investigated. The results revealed that there is no correlation between the length of cable, power source voltage drop, or which monitor actually felt the drop in voltage.

Additional investigation conducted with the assistance of the vendor representative, identified that a 50 millisecond voltage drop of the magnitude experienced in this event, 120V to 65V, can cause the loss of power interlock. The vendor has no specification regarding line conditioning.

The power failure voltage setting for radiation monitors has been previously evaluated. Based on this evaluation, 90 Volts is the lowest setting that assures all of the power fail functions perform as designed on loss of power to the monitor.

An Engineering evaluation will be conducted on the Area and Process Radiation Monitors with interlock functions to determine possible solutions to minimize actuations that occur as a result of spurious voltage perturbations on the transmission system. This will be tracked to completion by action item 456-200-90-01401.

F. PREVIOUS OCCURRENCES:

DVR Number	Title
DVR 20-1-87-099 / LER 87-018	TRAIN B CONTAINMENT ISOLATION SIGNAL DUE TO AN UNDERVOLTAGE CONDITION SENSED BY THE CONTAINMENT INCIDENT FUEL MONITOR
DVR 20-1-88-176 / LER 88-019	TRAIN A AND B CONTROL ROOM VENTILATION SWITCHOVER DUE TO RADIATION MONITORS OPR31J THRU 34J MOMENTARY LOSS OF POWER
DVR 20-2-88-190 / LER 88-027	CONTAINMENT VENTILATION ISOLATION DUE TO TRANSIENT LOSS OF 345 KV SWITCHYARD LINE 0103
DVR 20-1-89-036 / LER 89-003	CONTAINMENT, FUEL HANDLING, AND CONTROL ROOM VENT ACTUATIONS DUE TO LOSS OF VOLTAGE TO THEIR ASSOCIATED RADIATION MONITORS

G. COMPONENT FAILURE DATA:

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