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

February 20, 1991
BW/91-0180

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)(i)(B) which require a 30-day written report.

This report is number 91-001-00; Docket No. 50-456.

Very truly yours,

K. L. Kofron
Station Manager
Braidwood Nuclear Station

KLK/AS/clf
(226/ZD85G)

Enclosure: Licensee Event Report No. 91-001-00

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)

1B Containment Spray Pump Inoperable Due to Use of Non Qualified Power Supply Breaker

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)
									None	0 5 0 0 0
0 1	2 1	9 1	9 1	0 0 1	0 0	0 2	1 2	9 1		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)					
5		20.402(b)	20.405(c)	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)	X 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
D. Nelson, LER Coordinator Ext. 2497	8 1 5 4 5 8 - 2 0 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)

On December 18, 1990 the 1B Containment Spray (CS) pump was placed in an Out-of-Service condition for maintenance. In accordance with Technical Specifications, a seven day time clock started. The 1B CS pump power supply breaker was removed for inspection and found damaged. A spare breaker was used to replace the defective breaker. On December 21, the 1B CS pump was started and declared operable. On January 21, 1991 personnel suspected an unqualified breaker had been used. Upon confirmation that a seismically unqualified breaker had been installed, it was determined that the 1B CS pump had been technically inoperable. The Technical Specification time clock actually expired on December 25, 1990. The cause was an incorrect conclusion that any power supply breaker is qualified. The breaker was removed and replaced. This event will be reviewed with all operators. The non-1E breakers will be labeled to prevent recurrence. Additional training will be provided to explain proper breaker usage and the design characteristics of class 1E breakers. There have been no previous occurences.

A. Plant Conditions Prior to Event:
Unit: Braidwood 1; Event Date: December 25, 1990; Event Time: 1740;
Mode: 1 - Power Operation; Rx Power: 99%
RCS [AB] Temperature / Pressure: NOT / NOP

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 1740, on December 18, 1990 the 1B Containment Spray (CS) [BE] pump was placed in an Out-of-Service (OOS) condition for maintenance. The pump was declared inoperable and per Technical Specifications, a seven day time clock started since the unit was not in Mode 5 (Cold Shutdown). To track the time clock, Limiting Condition for Operation Action Requirement (LCOAR) 1BwOS 6.2.1-1a was initiated.

On December 19, the 1B CS pump power supply breaker was removed from its cubicle to perform breaker inspection surveillance BwMS 4002-071. This surveillance is performed by Electrical Maintenance Department (EMD) personnel (non-licensed). During inspection of the breaker, EMD determined that a wire for the auxiliary contact block was damaged. Nuclear Work Request (NWR) A45447 was generated by EMD to repair the breaker wiring.

On December 20, EMD requested engineering assistance from the Technical Staff Electrical Group to allow for taping of the damaged wiring. After consultation with the breaker vendor, Westinghouse Electric Corporation - Nuclear Services Division, Technical Staff personnel informed EMD that the breaker could not be repaired by taping the damaged wiring. Due to the unavailability of suitable replacement wiring, EMD concluded that the breaker could not be repaired at this time. Since the breaker remained unavailable, EMD notified the Operating Department that a spare breaker would be required to replace the defective breaker.

To expedite the return-to-service of the 1B CS pump, a Shift Supervisor (licensed SRO) directed an Equipment Operator (EO) (non-licensed) to install a replacement breaker into the 1B CS pump power supply cubicle. The EO proceeded to the power supply cubicle and installed a spare breaker. The breaker was left in a racked-out condition in accordance with the OOS procedure.

At 0520, on December 21, preparations for returning the 1B CS pump to service were commenced per Braidwood Operating Procedure BwOP CS-3, Filling and Venting the Containment Spray System.

At 0547, the OOS for the breaker was removed and the 1B CS pump power supply breaker in the cubicle was placed in the racked-in position by an EO.

At 1816, the 1B CS pump was started in the recirculation mode to verify pump operability. After completion of all required procedures as designated by the Station Control Room Engineer (licensed SRO) in LCOAR 1BwOS 6.2.1-1a, the 1B CS pump was declared operable at 2033. At this time the seven day Technical Specification time clock terminated and the LCOAR was exited.

At 1740, on January 5, 1991, Unit 1 entered Mode 5 (Cold Shutdown) due to an unplanned outage for repairing the main generator.

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

On January 21, EMD personnel were analyzing NWR A45447 and suspected an unqualified breaker had been used in the 1B CS pump power supply cubicle. At 1247, EMD notified the Shift Engineer (licensed SRO) that the breaker installed was non-safety qualified. At this time, the CS system was OOS and not required by Technical Specifications to be operable. The SE directed an EO to install a qualified breaker into the 1B CS pump power supply cubicle in the racked-out position.

The Technical Staff Parts Group was contacted to assess the impact of installing a non-safety qualified breaker into the 1B CS pump power supply cubicle. Technical Staff personnel requested Site Field Engineering (SFE) to evaluate the difference between breakers used in safety related (Class 1E) power supply cubicles and the breakers used in non-safety (non-1E) related power supply cubicles.

On January 25, the conclusion obtained from SFE was that the safety related breakers are seismically qualified. Upon confirmation that a seismically unqualified breaker had been installed, it was determined that the 1B CS pump was technically inoperable for greater than the Technical Specification allowable outage time interval of seven days. The Technical Specification time clock actually expired at 1740 on December 25, 1990.

Subsequent to the above event, it was determined on February 17, that a non-1E breaker had been installed in the Division 11 System Auxiliary Transformer feed power supply breaker cubicle. The non-1E breaker was replaced with a qualified breaker and an investigation is in progress.

This event is being reported pursuant to 10CFR50.73(a)(2)(i)(B) - any operation prohibited by the plant's Technical Specifications.

C. Cause of Event:

The cause of the event was an incorrect conclusion by Operations personnel that any 4 KV power supply breaker is qualified for use in a safety related power supply cubicle. Electrically and mechanically the class 1E and non-1E breakers are interchangeable. However, the 1E breakers have seismic qualifications required for class 1E applications. The only external difference, identifiable to an operator, is that barrier brackets and braces are installed on the 1E breakers. Discussions with personnel revealed that limited knowledge of the difference in breaker design existed. This is considered a programmatic deficiency.

D. Safety Analysis:

This event had no effect on the safety of the plant or the public. At the time of discovery, the 1B CS pump was not required since the Unit was in Mode 5. The non-1E breaker was removed from the 1B CS pump power supply cubicle.

The non-1E breaker installed was electrically capable of operating the 1B CS pump. This was demonstrated by the operability test performed prior to declaring the 1B CS pump operable. Therefore, reasonable assurance existed that the pump would operate when required.

Seismic qualification for electrical equipment at Braidwood Station is discussed in Section 3.10 of the Braidwood Safety Evaluation Report (NUREG 1002, Supplement 2). The specific licensing criteria is described in Regulatory Guide 1.100 and 1.92, SRP Section 3.10 and Institute of Electrical and Electronic Engineers (IEEE) Standard 344-1975. With a non-seismic breaker installed, the design basis criteria will be unsatisfied. Generic Letter 87-02, Verification of Seismic Adequacy of Mechanical and Electrical Equipment in Operating Reactors, Unresolved Safety Issue A-46 provided guidance to nuclear power plants licensed prior to the current standards. Specifically, the licensee will determine systems required during and following a design basis seismic event. The letter describes development of a procedure for verifying seismic adequacy of equipment and allows assumptions to be made. An assumption, as stated in the letter, could be made that the design basis seismic event does not cause a Loss-of-Coolant Accident (LOCA), Steam Line Break Accident (SLBA), or High Energy Line Break (HELB) and that a LOCA, SLBA, or HELB does not occur simultaneously with or during a seismic event. Since CS is only required during a LOCA or SLBA inside containment, a non-seismically qualified breaker installed in the 1B CS pump power supply cubicle had no safety significance. Also, the 1A CS pump remained available and operable throughout the event.

E. Corrective Actions:

Upon discovery that unqualified breakers had been installed, the breakers were removed and replaced with qualified breakers.

An inspection of all breakers in both Unit's safety related power supply cubicles revealed no further deficiencies.

Further investigation to determine how and when the breaker for the Division 11 System Auxiliary Transformer power supply cubicle is in progress. Should the date of installation be determined, then a supplemental report will be issued. This will be tracked to completion by Action Item 456-200-90-00401.

Discussions will be held with all operating crews regarding the details of this event. This will be tracked to completion by Action Item 456-200-90-00402.

Long term corrective actions to prevent recurrence include:

1. Labeling of the non-1E breakers to preclude their installation in a safety related power supply cubicle. This will be tracked to completion by Action Item 456-200-90-00403.

2. Training will be provided for Equipment Operators to explain proper breaker usage and the design characteristics of class 1E breakers. This will be tracked to completion by Action Item 456-200-90-00404.

F. Previous Occurrences:

There have been no previous occurences of non-1E breakers installed in a 1E power supply cubicle.

G. Component Failure Data:

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