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

May 16, 1994
BW/94-0089

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

This report is number 94-008-00, Docket No. 50-456.

K. L. Kofron
Station Manager
Braidwood Station

KLK/JL/dla
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Enclosure: Licensee Event Report
No. 456/94-008-00

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

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NRC FORM 366 (5/92) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95

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.

LICENSEE EVENT REPORT (LER)

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

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Braidwood 1	05000456	1 OF 5

TITLE (4) Both Diesel Generators Inoperable due to Misinterpretation of Surveillance Data

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 NUMBERS
04	21	94	94	-- 008 --	00	05	20	94	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	5
POWER LEVEL (10)	0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

	20.402(b)		20.405(c)		50.73(a)(2)(iv)		73.71(b)
	20.405(a)(1)(i)		50.36(c)(1)	X	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	TELEPHONE NUMBER (Include Area Code)
T. Koenig, System Engineering	(815)458-2801 x2660

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
				N						

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 15 single-spaced typewritten lines) (16)

Braidwood Unit 1 was in a refueling outage with diesel generator surveillances being performed. One diesel generator was required to remain operable. Braidwood surveillance 1BwVS 8.1.1.2.f-20, "1B Diesel Generator 5500KW Load Rejection" was performed as required and considered acceptable. The 1A diesel generator was operable at this time. Later, 1BWVS 8.1.1.2.f-19, "1A Diesel Generator 5500KW Load Rejection" was performed. During this surveillance it was observed that the 1A diesel generator output voltage exceeded the Technical Specification limit during the 5500KW load rejection. As part of the investigation, the data for the 1B diesel generator output voltage was reevaluated. The reevaluation recognized that the 1B diesel generator output voltage had also exceeded the Technical Specification limit. This resulted in both diesel generators being declared inoperable. The appropriate action statement of Technical Specification 3.8.1.2 was entered and complied with. The primary cause of this event was a personnel error, the 1B diesel generator output voltage value was misinterpreted. The Diesel Generator 5500KW Load Rejection tests for both the 1A and 1B DGs were reperformed after adjusting KVAR loading. The surveillances for the diesel generators will be revised to record the maximum generator voltage.

A. PLANT CONDITIONS PRIOR TO EVENT:

UNIT: Braidwood 1; EVENT DATE: April 21, 1994;
EVENT TIME: 1330;
MODE: 5; RX POWER: 0%;
RCS [AB] TEMPERATURE/PRESSURE: 95°F/0 psig

B. DESCRIPTION OF EVENT:

On March 4, 1994 Braidwood Station Unit One started Refueling Outage A1R04. At least once every 18 months, during shutdown, specific diesel generator surveillances are required to be performed per Technical Specification 4.8.1.1.2.f. One diesel generator is required to remain operable on a Unit when in mode 5 or 6. Outage work began on train "B" equipment. Therefore, the 1A diesel generator was required to remain operable. At the conclusion of the maintenance and surveillance testing activity on the train "B" equipment, train "A" work began and the 1B diesel generator was required to remain operable.

At 0903 on March 23, 1994, surveillance 1BwVS 8.1.1.2.f-20, "1B Diesel Generator 5500KW Load Rejection" was performed as required during the refueling outage and considered acceptable. The 1A diesel generator was operable at this time. At 1522 on April 20, 1994, surveillance 1BwVS 8.1.1.2.f-19, "1A Diesel Generator 5500KW Load Rejection" was performed. Technical Specification 4.8.1.1.2.f.3 requires verification of the diesel generator capability to reject a load of 5500KW without tripping, while the generator voltage shall not exceed 4784 volts during and following the load rejection. It was observed on the strip chart recorder that the 1A diesel generator output voltage exceeded the Technical Specification voltage limit during the 5500KW load rejection. As part of the investigation, the strip chart voltage trace for the 1B diesel generator surveillance 1BwVS 8.1.1.2.f-20, performed on March 23, 1994 was also reevaluated. The reevaluation recognized that the 1B diesel generator output voltage had also exceeded the Technical Specification voltage limit during the 5500KW load rejection. At this time the 1A diesel generator was already inoperable due to train "A" refueling outage maintenance activities. At 1330 on April 21, 1994 the 1B diesel generator was also declared inoperable. Thus both diesel generators were inoperable and the appropriate action statement of Technical Specification 3.8.1.2 was entered and complied with.

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LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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Braidwood 1	05000456	94	-- 008 --	00	3 of 5

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

B. DESCRIPTION OF EVENT (continued):

A review of plant conditions between the initial performance of the surveillance on the 1B Diesel on March 23, 1994 (where the 1B DG load rejection surveillance should have been declared unacceptable and the 1B DG not declared operable) and the discovery of its inoperability on April 21, 1994 found that the 1B DG was the only DG that was available while the 1A DG was undergoing maintenance. This effectively put Unit 1 in a situation where there was no operable DG available between March 28, 1994 and April 23, 1994.

At 1710 EDST a four hour non-emergency ENS phone call was made pursuant to 10CFR50.72(b)(2)(iii)(D) - any event or condition that alone could have prevented the fulfillment of a safety function of systems required to mitigate the consequences of an accident.

This event is being reported pursuant to 10CFR50.73(a)(2)(v) - any event or condition that alone could have prevented the fulfillment of a safety function of systems required to mitigate the consequences of an accident.

C. CAUSE OF EVENT:

The primary cause of this event was a personnel error on the part of the Electrical Group in the System Engineering Department. The 1B diesel generator output voltage maximum value displayed on the strip chart recorder was misinterpreted. This value was recorded during the generator 5500KW load rejection surveillance (1BwVs 8.1.1.2.f-20) on March 23, 1994. The maximum generator output voltage was 4900 volts, which exceeded the Technical Specification limit of 4784 volts. The performed surveillance was incorrectly declared acceptable and the 1B diesel generator subsequently declared operable.

The secondary cause of this event was a programmatic deficiency. The Mechanical/Structural Design Group in the Nuclear Engineering and Technology Services (NETS) Department recommended testing Braidwood Stations Emergency Diesel Generators at their designed 0.8 power factor. This resulted in an increase in voltage greater than the Technical

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

C. CAUSE OF EVENT (continued):

Specification allowed maximum voltage. The Emergency Diesel Generators were previously tested at KW and KVAR levels which are equivalent to greater than a 0.9 power factor. The Mechanical/Structural Design Group recommended testing the Braidwood Station Emergency Diesel Generators to a 0.8 to 0.9 power factor at least once per refueling cycle and revising applicable Emergency Diesel Generator procedures which address generator loading. The affect of testing the Emergency Diesel Generators at rated KVA (0.8 to 0.9 power factor) was evaluated prior to the recommendation and determined that testing the Emergency Diesel Generators at a 0.8 power factor adequately subjects the Emergency Diesel Generator to realistic parameters experienced during an actual event. The maximum diesel generator output voltage expected, with this change in testing philosophy, during the 5500KW load rejection test was not adequately analyzed.

D. SAFETY ANALYSIS:

This event had no effect on plant or public safety. While performing the Emergency Diesel Generator 5500KW load rejection surveillances, the generators functioned without a problem. The diesels did not trip and the generators were not damaged by the voltage transient. NEI Peebles (the manufacturer of the generators for Braidwood Station Emergency Diesels) was contacted and stated the voltage was acceptable and would not damage the generator. Based on investigations, it was concluded that the Braidwood Station 1B Emergency Diesel Generator would have met and performed all of its intended safety functions for the entire period from March 23 through April 21, 1994.

E. CORRECTIVE ACTIONS:

The Diesel Generator 5500KW Load Rejection tests for both the 1A and 1B DGs were reperformed after adjusting KVAR loading. The 1B DG was tested and it passed satisfactorily on April 22, 1994 at 1817 hours. LCOAR 3.8.1.2 was exited on April 23, 1994 at 0506 hours. Subsequent retesting of the 1A DG was performed on April 22, 1994 and it also passed its surveillance test.

The diesel generator 5500KW load rejection surveillances for all four generators (Units 1 and 2) will be revised to record the maximum generator voltage displayed on the strip chart recorder. In addition, an Independent Verification with the recording of the maximum generator voltage during the 5500KW load rejection will be required. This action will be tracked to completion by action item 456-180-94-00801.

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

E. CORRECTIVE ACTIONS (continued):

Braidwood Station Site Engineering, along with NETS will pursue the determination of a higher maximum voltage limit during the 5500KW load rejection test. Incorporation of the power factor recommendations from NETS in a possible revision of the Technical Specification will be analyzed. This action will be tracked to completion by action item 456-180-94-00802.

F. PREVIOUS OCCURRENCES:

None.

G. COMPONENT FAILURE DATA:

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