

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 1DOCKET NUMBER (2)
05000456PAGE (3)
1 OF 5TITLE (4)
Both Trains of Control Room Ventilation Inoperable due to Equipment Failure and Procedural Deficiency.

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
12	13	93	93	-- 007 --	00	01	12	94	None	05000
									FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10)	99	20.402(b)		20.405(c)		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)	X	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
J. Gosnell, System EngineeringTELEPHONE NUMBER (Include Area Code)
(815)458-2801 x2322

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
				No					

SUPPLEMENTAL REPORT EXPECTED (14)

YES	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
(If yes, complete EXPECTED SUBMISSION DATE).	X				

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

On December 13, 1993, Braidwood Station tried to start the 'B' control room ventilation make-up fan. The make-up fan tripped on low flow and operating declared the 'B' train of control room ventilation inoperable and entered LCOAR 7.6.1-a. While swapping to the 'A' train of control room ventilation, the main control room pressure became negative. The hydramotor for the supply fan discharge damper failed. Operating declared the 'A' train inoperable and entered Technical Specification 3.0.3 for both units at 1324. The flow control loop for the make-up fan was adjusted and the 'B' train of control room ventilation was declared operable. Operating exited Technical Specification 3.0.3 at 1352. The cause of the event was a combination of Equipment Failure and Procedural Deficiency. This event did not effect plant or public safety. The failed hydramotor was replaced, the test report packages for the flow control loops will be enhanced, the frequency of the loop calibration will be increased, and a review of similar hydramotor failures will be done.

NRC FORM 366A
(5-92)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95**LICENSEE EVENT REPORT (LER)**
TEXT CONTINUATION

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)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
Braidwood 1	05000456	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 5
		93	-- 007 --	00	

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

A. PLANT CONDITIONS PRIOR TO EVENT:

UNIT(S): 1/2; EVENT DATE: December 13, 1993;
 EVENT TIME: 1324;
 MODE: 1/1; RX POWER: 99%/99%;
 RCS [AB] TEMPERATURE/PRESSURE: NOT/NOP

B. DESCRIPTION OF EVENT:

There were no components or systems unavailable that contributed to this event.

On December 13, 1993, as a part of the Unit 2 'B' train Aux Feed surveillance, Braidwood Operating department tried to start the 'B' control room ventilation make-up fan. The make-up fan tripped on low flow. The make-up fan was restarted and again tripped on low flow. Operating declared the 'B' train of control room ventilation inoperable and entered LCOAR 7.6.1-a., which requires the system to be restored to Operable status within seven days.

While swapping to the 'A' train of control room ventilation, the main control room pressure became negative. Operating noticed that there was dual indication for OVC033Y, which is the control room ventilation supply fan discharge damper for the 'A' train. The hydramotor for OVC033Y was not fully opening the damper. This caused high supply fan differential pressure and low control room pressures. Operating declared the 'A' train inoperable and entered Technical Specification 3.0.3 for both units at 1324.

Instrument Maintenance and System Engineering adjusted the flow control loop for the 'B' train control room ventilation make-up fan. Operating started the 'B' train of control room ventilation including the make-up fan. The make-up fan was shut down and restarted without a trip. The 'B' train of control room ventilation was declared operable. Operating exited Technical Specification 3.0.3 at 1352.

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

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

C. CAUSE OF EVENT:

The cause of the event was a combination of Equipment Failure and Procedural Deficiency. Failure of 0FZ-VC001C, the hydramotor for damper 0VC033Y on the 'A' train, with the out-of-adjustment condition for the response time of the 'B' train flow control loop, combined to cause both trains of control room ventilation to become inoperable and for Operating to enter Technical Specification 3.0.3.

The cause of the hydramotor equipment failure was excessive oil leakage. During troubleshooting following the failure, Electrical Maintenance found the cause of the 'A' train failure through the performance of BwHS 4002-082, NH91/NH95 Nuclear Hydramotor Actuator Surveillance. While performing this surveillance, oil was found inside the control cover. The oil leak was severe enough to prevent proper operation of the hydramotor. BwHS 4002-082 specifies that the hydramotor be overhauled or replaced when excessive leakage is found.

Inspections for this type of hydramotor are done every five years. The last inspection for this hydramotor was done on April 27, 1989. This inspection revealed no problems. No other maintenance had been performed on this hydramotor prior to its failure.

The station has experienced hydramotor problems in the past. Over time, modifications to hydramotors have reduced the amount of failures. There has only been one NPRDS reportable failure for hydramotors at Braidwood.

The improper response time adjustment was caused by inadequate test acceptance criteria. During the week of December 6, 1993, Instrument Maintenance assisted System Engineering in adjusting the response time of the 'B' train control room ventilation flow loop. This loop was tuned because the low flow alarm was toggling in the main control room.

Instrument Maintenance assisted System Engineering in tuning the loop with the make-up fan running. The fan was then shut down and restarted once to verify that it would not trip on low flow. If a certain flow is not achieved within 45 seconds, the make-up fan will trip. The make-up fan started successfully. No further maintenance or testing took place on this loop. The time between starting the fan and the clearing of the low flow switch should have been verified to ensure an adequate margin existed.

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				REVISION NUMBER 00	PAGE (3) 4 OF 5

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

D. SAFETY ANALYSIS:

This event did not effect plant or public safety, given that the plant conditions were stable with both Units at full power and that there were no adverse plant conditions in existence throughout the twenty eight minutes of this event.

During the event there were no other systems that were able to provide unfiltered make-up air to the control room envelope. With the 'A' train discharge damper half open the control room envelope pressure was negative compared to atmosphere. The 'A' train make-up fan was operable but it could not provide enough make-up air to keep the control room envelope at a positive pressure. With the 'A' train control room ventilation train operating in emergency make-up, unfiltered air would be drawn in the doors because of the negative pressure inside the control room envelope. The 'B' train make-up fan was inoperable, which means that this train could not provide any unfiltered make-up air either.

The control room ventilation system has a recirculation unit with a charcoal adsorber. During this event both the 'A' and 'B' train recirculation units were available. The recirculation units are downstream of the make-up fans. Iodine levels from unfiltered air would be reduced by the recirculation unit, but the particulates in the unfiltered air would only go through a bag filter.

If an accident had occurred during the twenty eight minutes of this event, the control room envelope could have been contaminated with unfiltered air.

E. CORRECTIVE ACTIONS:

Instrument Maintenance will enhance the test report packages for the 'A' train and 'B' train control room ventilation make-up fan flow control loops. Notes or comments will be added to the test report package to include a verification that the low flow switch contacts are timed to ensure they open in less than 42 seconds. This will be tracked to completion by commitment number 456-180-93-00701.

System Engineering will increase the frequency of the Generating Station Instrument Network (GSIN) calibration for this loop. This will be tracked to completion by commitment number 456-180-93-00702.

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E. CORRECTIVE ACTIONS (continued):

Electrical Maintenance replaced 0FZ-VC001C, the hydramotor for 0VC033Y. The new hydramotor was successfully tested and declared operable.

System Engineering will perform a review for similar hydramotor failures and determine if any additional inspection requirements are necessary. This will be tracked to completion by commitment number 456-180-93-00703.

F. PREVIOUS OCCURRENCES:

A review of the SEE-IN database identified no previous reportable occurrences.

G. COMPONENT FAILURE DATA:

ITT Barton (I204), hydramotor, NH95