

LICENSEE EVENT REPORT (LER)

Facility Name (1) Braidwood, Unit 1										Docket Number (2) 0 5 0 0 0 4 5 6										Page (3) 1 of 0 4																													
Title (4) Residual Heat Removal Pumps Declared Inoperable Due to Improper Surveillance Execution																																																	
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			1 5			8 7			8 8			0 0 7			0 0			0 3			1 3			8 8			Braidwood 2										0 5 0 0 0 4 5 7												
OPERATING MODE (9) 4										THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)																																							
POWER LEVEL (10) 0 0 0										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)										X 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 Marvin R. Engen, Technical Staff Engineer																				Ext. 2365										TELEPHONE NUMBER AREA CODE 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					MANUFAC-TURER					REPORTABLE TO NPRDS					CAUSE					SYSTEM					COMPONENT					MANUFAC-TURER					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 2355 on February 15, 1987, Unit 1 initially entered Mode 4. On February 2, 1988, it was determined that vibration readings were required on the motors of the Residual Heat Removal (RHR) and Containment Spray (CS) pumps. On February 9, 1988, Unit 2 initially entered Mode 4. On February 18, 1988, during the process of investigating the upper motor bearing vibration reading observed on the 1B CS pump on February 8, 1988, it was discovered that the lower motor bearing vibration readings for the RHR pumps were not current for the 1B, 2A and 2B pumps. The pumps were declared inoperable. The RHR pumps were satisfactorily tested and declared operable by 1424 on February 19, 1988.

The cause was a programmatic deficiency in that the pump vibration requirement was improperly interpreted from ASME Section XI. This resulted in incorrect identification of mandated vibrational requirements for the pumps forming an integral unit with their driver and generation of inadequate procedures and training requirements.

The pumps have been properly tested. The procedures will be permanently revised to clearly specify the location for the vibration readings and the appropriate acceptance criteria.

No previous occurrences of improper ASME IST surveillances.

8803220238 880313
PLR ADOCK 05000456
S PDR

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)						Page (3)	
		Year	Sequential Number	Revision Number					
Braidwood, Unit 1	0 5 0 0 0 4 5 6	8 8	-	0 0 7	-	0 0	0 2	OF	0 4
TEXT Energy Industry Identification System (EIIIS) codes are identified in the text as [xx]									

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: Braidwood 1; Event Date: February 17, 1988; Event Time: 1850
 MODE: 4 - Hot Shutdown; Rx Power: 0%; RCS [AB] Temperature/Pressure: 249°F/372 psig

Preparations in progress for returning the unit to service following a surveillance outage.

Unit: Braidwood 2; Event Date: February 18, 1988; Event Time: 1539
 MODE: 3 - Hot Standby; Rx Power: 0%; RCS [AB] Temperature/Pressure: 556°F/2235 psig

Preparations in progress for initial criticality with startup testing in progress.

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 2355 on February 15, 1987, Unit 1 initially entered Mode 4.

On February 2, 1988, a memo was sent from the Braidwood Inservice Testing (IST) coordinator to the primary group leader stating that vibration readings were required to be taken on the motors of the Residual Heat Removal (RHR) [BP] and Containment Spray (CS) [BE] pumps. This requirement was discovered by the IST coordinator during a review of American Society of Mechanical Engineers (ASME) Section XI, Article IWP-1200. Paragraph (A) of article IWP-1200 states, "Drivers are excluded from the requirements of this subsection, except where the pump and driver form an integral unit and the pump bearings are in the driver". Since the CS and RHR pumps are integral units with their motors, and the pump bearings are in the driver, the exclusion of IWP-1200 was incorrectly being applied and the lower motor bearing vibration should have been taken during the pumps quarterly ASME testing. Pump vibration was being monitored at the upper pump casing during the quarterly testing. The primary group leader directed that the motor vibration data be taken at the earliest possible date. This was deemed as acceptable since the motor bearing vibration data was understood to be an IST program requirement and not a technical specification requirement.

On February 8, 1988, both trains of Unit 1 CS pumps were run for the scheduled quarterly ASME pump run. During this test the upper and lower motor bearing vibration data was taken for both pumps. The Train B CS pump upper motor bearing vibration reading was found to be in the alert range of the acceptance criteria for the lower bearing, thus an increased monitoring frequency was assumed to be required.

At 2100 on February 9, 1988, Unit 2 initially entered Mode 4.

On February 17, 1988, the 1B CS pump was placed on an increased monitoring frequency. Discussions were held with regard to the operability status of the 1B CS pump as this specific vibration monitoring had not been performed in the past. At 1850 on February 17, 1988, a formal investigation was initiated with regard to this issue.

Preliminary investigation into this issue revealed that per ASME Section XI, Article IWP-4510, one vibration reading is required and that reading shall be as close as possible to the inboard bearing for close-coupled pumps, such as the RHR and CS pumps. Based on this article of the ASME code, the 1B CS pump lower motor bearing vibration reading was not within the alert range of the acceptance criteria and therefore, no increase in the monitoring frequency was warranted. The upper motor bearing vibration reading, which was initially used to increase the monitoring associated with the 1B CS pump, is not the parameter of interest.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (5)										Page (3)		
		Year												
		Sequential Number										Revision Number		
Braidwood, Unit 1	0 5 2 0 4 5 6 8 2	-	0 0 7	-	0 0	0 3 OF 0 4								
TEXT Energy Industry Identification System (EIIIS) codes are identified in the text as [xx]														

On February 18, 1988, during the process of investigating the above concerns, a question was raised regarding the operability of the Unit 1 CS pumps and both units' RHR pumps. The scope of the review was increased in response to these new concerns. An investigation into this issue revealed that the lower motor bearing vibration readings were taken on the 1A and 1B CS pumps on February 4, 1987 and May 13, 1987, respectively as well as subsequent surveillances. The lower motor bearing vibration readings were taken on the 2A and 2B CS pumps on October 23, 1987, as well as subsequent surveillances. The lower motor bearing vibration reading for the 1A RHR pump was taken on December 23, 1987, following unrelated maintenance on the pump. It was determined that the lower motor bearing vibration readings had been improperly taken on the 1B, 1A and 2B RHR pumps. Alternatively, upper pump casing vibration readings had been taken.

At 1539 on February 18, 1988, as a result of the above surveillance not being current, the 1B, 2A and 2B RHR pumps were declared inoperable. Unit 1 was in Mode 2 and thus only one train of RHR was required to be operable. However, Unit 2 was in Mode 3 and both trains of RHR are required to be operable. Therefore, Limiting Condition for Operation Action Requirement (LCOAR) 2BWS 0.3-2a was entered to comply with Technical Specification 3.0.3.

At 1900 on February 18, 1988, the 2A RHR pump was satisfactorily tested, declared operable and LCOAR 2BWS 0.3-2a was exited. LCOAR 2BWS 5.2-1a was entered due to the 2B RHR pump still being inoperable.

At 2155 on February 18, 1988, the 2B RHR pump was satisfactorily tested, declared operable and LCOAR 2BWS 5.2-1a was exited.

At 1424 on February 29, 1988, the 1B RHR pump was satisfactorily tested and declared operable.

Operator actions neither increased nor decreased the severity of this event. Plant conditions remained stable throughout the event for Unit 1. A controlled cooldown was initiated on Unit 2 as a result of entry into Technical Specification 3.0.3.

This event is being reported pursuant to:

1. 10CFR50.73(a)(2)(i) - Any operation or condition prohibited by the plant's Technical Specifications, and
2. 10CFR50.73(a)(2)(vii) - Any event where a single cause or condition caused by at least one independent train or channel to become inoperable in multiple systems or two independent trains or channels to become inoperable in a single system designed to remove residual heat.

C. CAUSE OF EVENT:

The root cause of this event is a programmatic deficiency in that the requirement was improperly interpreted from the ASME Section XI. This resulted in the incorrect identification of required vibrational requirements for pumps forming an integral unit with their driver, specifically, the RHR and CS pumps. As a result, the generation of procedures and training requirements were inadequate.

D. SAFETY ANALYSIS:

There was no effect on plant or public safety as the required RHR and CS pump vibration readings demonstrated that the pumps were operable throughout the entire event.

Under worst case conditions of a design basis accident, the plant and public safety was not endangered as the residual heat removal as well as the containment spray trains were fully operable.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)						Page (3)		
		Year		Sequential Number		Revision Number				
Braidwood, Unit 1	0 5 0 0 0 4 5 6 8 8	-		0 0 7	-	0 0		0 4	QF	0 4
TEXT Energy Industry Identification System (EIS) codes are identified in the text as [xx]										

Vibration readings were being taken at the pump casing, approximately six-inches from the required lower motor bearing reading location, during the quarterly pump surveillances. Any significant motor bearing vibration would have been noted by the vibration readings at the pump casing.

E. CORRECTIVE ACTIONS:

The pumps for which lower motor bearing data was unavailable were declared inoperable, until the proper ASME testing demonstrated that the pumps were in fact operable.

The KHR and CS pump ASME surveillance procedures will be permanently revised to clearly specify the location for motor bearing readings and clarify the lower motor bearing vibration reading for the acceptance criteria. This will be tracked to completion by Action Item 456-200-88-04601.

F. PREVIOUS OCCURRENCES:

There have been no previous occurrences of improper ASME IST surveillance.

G. COMPONENT FAILURE DATA:

This event was not caused by component failure nor did any components fail as a result.



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

BW/88-017

March 16, 1988

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)(vii)(B)/10CFR50.73(a)(2)(i)(B) which requires a 30 day written report.

This report is number 88-007-00; Docket No. 50-456.

Very truly yours,

R. E. Querio
Station Manager
Braidwood Nuclear Station

REQ/PMB/jan
(6802z)

Enclosure: Licensee Event Report No. 88-007-00

cc: NRC Region III Administrator
T. Tongue, NRC Resident Inspector
INPO Record Center
CECo Distribution List

IE22
11