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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 18 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 the 18, 24 and 28 pumps. The pumps were declared inoperable. The RHR pumps were satisfacto ily 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.

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A. PLANT DNDITIONS 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: J - Hot Standby ; Rx Power: 0% ; RCS [AB] Temperature/Pressure: 556°F/2235 psig

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

8. 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 draidwood 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 fince 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 C: 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 18 CS pump was placed on an increased monitoring frequency. Discussions were held with regard to the operability status of the 18 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 18 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 18 CS pump, is not the parameter of interest.

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On February 18, 1953, during the process of investigating the above concerns, a question was raised regarding the operability of the Unit 3 CS pumps and both units' RHR pumps. The scope of the review was increased in resconse to these new concerns. An investigation into this issue revealed that the lower motor bearing vibration readings were taken on the 1A and 18 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 28 CS pumps on October 23, 1987, as well as subsequent surveillances. The lower motor bearing vibration readings were taken on the 2A and 28 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, 1937, following unrelated maintenance on the pump. It was determined that the lower motor bearing vibration readings had been improperly taken on the 18, 3A and 28 RHR pumps. Alternatively, upper pump casing vibration readings had been taken.

At i539 on February 18, 1988, as a result of the above surveillance not being current, the iB 2A and 2B RHR pumps were declared inoperable. Unit I was in Mode 1 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) 23w0S 0.3-2a was entered to comply with Technical Specification 3.0.3.

At 1900 on February 18, 1968, the 24 RHR pump was satisfactorily tested, declared operable and LCOAR 28w0S 0.3-2a was exited. LCOAR 28wCS 5.2-1a was entered due to the 28 RHR pump still being inoperable.

At 2155 on February 18, 1988, the 28 RHR pump was satisfactorily tested, declared operable and LCOAR 28w05 5.2-la was exited.

At 1424 on February 29, 1988, the 18 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 ruported pursuant to:

1. 10CFR50.73(a)(2)(1) - 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 chainel 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 RHK 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 safecy was not endangered as the residual heat removal as well as the containment spray trains were fully operable.

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Vibration readings were being taken at the pump casing, approximately six-inches from the required lower motor bearing reading location, during the quilerly 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 uses was unavailable were declared inoperable, until the proper ASME testing demonstrated that the pumps were in fact operable.

The KHK and CS pump ASME surveillance procedures will be permanently revised to clearly specify the location for votor 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 surveillancer.

G. COMPONENT FAILURE DATA:

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



Commonwealth Edison Braidwood Huclear 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,

2. Guero

R. E. Querio Statio. Manager Braidwood Nuclear Station

REQ/PMB/jao (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