



Nebraska Public Power District

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CNSS923510

January 8, 1992

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Dear Sir:

Cooper Nuclear Station Licensee Event Report 91-019, Revision 0, is being forwarded as an attachment to this letter.

Sincerely,

J. M. Meacham
Division Manager of
Nuclear Operations
Cooper Nuclear Station

JMM/ju

Attachment

cc: R. D. Martin
G. R. Horn
R. E. Wilbur
V. L. Wolstenholm
D. A. Whitman
INPO Records Center
NRC Resident Inspector
R. J. Singer
CNS Training
CNS Quality Assurance

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Handwritten initials/signature

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Cooper Nuclear Station										DOC. NO. NUMBER (2) 0 5 0 0 0 2 9 8										PAGE (3) 1 OF 0 3																																																	
TITLE (4) Actuation Of Shutdown Cooling Isolation Valves While Performing the Containment Integrated Leak Rate Test																																																																					
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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On December 9, 1991, at 9:48 am, with the Primary Containment at 58 psig during the performance of the Primary Containment Integrated Leak Rate Test (ILRT), the Group 2 (Shutdown Cooling) isolation valves automatically closed while attempting to restart a Residual Heat Removal (RHR) pump in the Shutdown Cooling mode. The RHR pump had been secured to allow personnel using sonic detection equipment to locate sources of leakage. Upon restarting the RHR pump, the Shutdown Cooling high suction pressure interlock actuated. Both Shutdown Cooling isolation valves closed as a result of the actuation. At the time, the plant was in a refueling outage with a Reactor coolant temperature of 103 degrees Fahrenheit. The Reactor was vented to the Primary Containment during the test. Reactor coolant temperature increased to 128 degrees Fahrenheit over the 4 1/2 hours Shutdown Cooling was secured.

This event was the result of a momentary pressure transient resulting from starting the RHR pump combined with the ILRT pressure. A procedure change will be processed to provide the necessary guidance for starting an RHR pump in the Shutdown Cooling mode under ILRT conditions.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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

A. Event Description

On December 9, 1991, the plant was in a refueling outage with the Primary Containment Integrated Leak Rate Test (ILRT) in progress. The Primary Containment and Reactor vessel had been pressurized to 58 psig, as the Reactor vessel was vented to the Primary Containment. At 8:27 am, the Residual Heat Removal (RHR) pump providing Shutdown Cooling was secured to eliminate background noise to facilitate the location of leakage pathways by test personnel using sonic detection equipment. At 9:48 am, upon attempting to restart the RHR pump, the Shutdown Cooling high suction pressure interlock actuated, causing the Shutdown Cooling suction isolation valves, RHR-MOV-MO17 and RHR-MOV-MO18, to close, and the RHR pump to trip. This pressure interlock is set to actuate at a Reactor vessel dome pressure at or below 75 psig. After determining the cause of the actuation, a temporary modification, approved by the Station Operations Review Committee, was implemented to allow an RHR pump to be restarted.

B. Plant Status

The plant was in a refueling outage, with reactor coolant temperature at approximately 103 degrees Fahrenheit. The Primary Containment was pressurized to 58 psig for performance of the ILRT. The Reactor vessel was vented to the Containment. Vessel level was approximately 52 inches above instrument zero (216 inches above the top of the fuel).

C. Basis for Report

Actuation of the Group 2 Primary Containment isolation logic due to exceeding the setpoint of the Shutdown Cooling high suction pressure interlock, a non-ESF isolation signal. This event is being reported in accordance with the criteria prescribed by 10CFR50.73(a)(2)(iv).

D. Cause

The actuation of the Shutdown Cooling high suction pressure interlock was due to the momentary pressure transient caused by starting the RHR pump. This pressure transient, combined with the pressure imposed by the ILRT, exceeded the setpoint of the Shutdown Cooling high suction pressure interlock. During past performances of the ILRT, it had not been necessary to secure the operating RHR pump to identify leakage paths. Since the combined effect of the pump start pressure transient and ILRT pressure was unanticipated, the procedure governing the performance of the ILRT did not provide guidance on the potential for an isolation from the Shutdown Cooling high suction pressure interlock. Based on vessel level and Containment pressure, pressure at the switch was approximately 5 psig less than the setpoint. Thus, even a small pressure transient would be sufficient to actuate the high suction pressure interlock.

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ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORD- AND REPORTS MANAGEMENT BRANCH - 5301, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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TEXT (If more space is required, use additional NRC Form 388A's) (17)

E. Safety Significance

The Shutdown Cooling high suction pressure interlock provides overpressure protection for the piping between the isolation valves and the RHR pump suction. Technical Specifications require that the Reactor vessel dome pressure not exceed 75 psig while operating in the Shutdown Cooling mode. Since the vessel level was such that a large air volume existed above the water, dome pressure remained constant at approximately 58 psig. Upon sensing a momentary pressure transient, the Shutdown Cooling suction isolation valves closed as designed.

During the 4 1/2 hour period Shutdown Cooling was not operating, Reactor Coolant temperature increased from 103 degrees Fahrenheit to 128 degrees Fahrenheit. Because this test is conducted near the end of the Refueling outage, heatup of the Reactor coolant is typically slow, allowing several hours to restore cooling before compensatory measures are required.

F. Safety Implications

Startup of an RHR pump during normal shutdown or while in cold shutdown typically occurs at a pressure less than 25 psig. At this pressure, pressure transients resulting from the start of a pump do not approach the setpoint of the Shutdown Cooling high suction pressure interlock. During normal power operation, the Shutdown Cooling suction isolation valves are closed in accordance with design requirements.

G. Corrective Action

A procedure change will be processed to provide guidance to prevent actuation of the high suction pressure interlock should it be necessary to start an RHR pump in the Shutdown Cooling mode while the Containment is pressurized during an ILRT.

H. Similar Events

None.