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Research Reactor Facility

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March 17, 1981

Director of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Reference: Docket 50-186
University of Missouri
License R-103

Subject: Report as required by
Technical Specification 6.1.h(2).

Description

On February 23, 1981, following a normal reactor shutdown when the isolation valves for the reactor convective cooling loop (V546 A/B) automatically open, valve V546B failed to move to the fully opened position. This could be interpreted as a violation of Technical Specification 3.9.a(3) which requires the reactor convective cooling loop to be operable. Valve V546A was operable and the reactor requires only one of the two valves to open to perform the system design function.

Analysis

On February 23, 1981, when primary systems were secured, valve V546B failed to move to the fully open position. Valve V546A operated properly. Later testing of valve V546B showed that the valve actuator was no longer capable of moving the valve to either the full open or shut position without manual assistance. After the valve was removed from the system, it was disassembled and the operating mechanism examined. The mechanism was found to require a great deal of force to operate properly. The valve was then rebuilt, lubricated and reinstalled in the system.

No unresolved safety question exists. Section 3.4 of Addendum 3 to the Hazards Summary Report describes the operation of the reactor convective cooling loop. The analysis has determined the reactor convective cooling loop is not required for core protection, but that its operation will prevent the formation of steam in the loop and prevent thermal cycling of the fuel. The analysis is developed assuming only one of the two parallel valves (V546 A/B) operate in the required manner. Valve V546A functioned properly during the period valve V546B failed to function.

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Corrective Action

Valve V546B was rebuilt and tested satisfactorily prior to returning the reactor to operation. Additionally, valves V546 A/B will be checked routinely to verify proper operation.

Sincerely,

J.C. McKibben
Reactor Manager

JCMK:vs

cc: James Keppler, Director
Regulatory Operatiors - Region III

Document Management Branch, NRC

Reactor Advisory Committee

Reactor Safety Subcommittee