UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

NOV 0 5 1985

MEMORANDUM FOR: Dennis M. Crutchfield, Assistant Director for Safety Assessment, Division of Licensing

FROM: L. S. Rubenstein, Assistant Director for Core and Plant Systems, Division of Systems Integration

SUBJECT: RECOMMENDED INFORMATION NOTICE REGARDING POSSIBLE CREATION OF A LOCA AT A HIGH/LOW PRESSURE INTERFACE AFTER FIRE DAMAGE OCCURS IN THE CONTROL ROOM AT NUCLEAR POWER PLANTS

During a fire protection re-review at the Washington Nuclear Project Number 2 (WNP-2) by the licensee, it was discovered that for a fire in the control room, power would have to be removed from valve operators prior to fire damage to circuits in the control room. If damage occurs prior to removing power to the valve operators, the valves in the RHR suction and discharge lines could be spuriously opened resulting in overpressurization of the RHR piping and a nonisolatable LOCA. Heretofore we had been aware of the potential LOCA in the suction line to the RHR system, however, we were not aware of the potential for the discharge line. In our discussions with WNP-2 personnel, we have become aware of a bypass line around the check valve with a motor operated isolation valve in the line. This bypass line is used to warm up the RHR system by backflow from the reactor prior to initiating shutdown cooling in order to prevent thermal shocking of the reactor vessel nozzle safe end. Based on this bypass line around the check valve, credit for the check valve in preventing a LOCA at the high/low pressure interface can no longer be given.

In order to determine if other plants have similar piping designs to WNP-2, the FSAR P&ID drawings of nine other plants were reviewed. These plants include the BWR-4, BWR-5, and BWR-6 plant designs. Of these nine plants, six plants (Limerick, Susquehanna, Clinton, Hope Creek, Nine Mile Point and Perry) have similar piping configurations. We do not know, however, if these plants have considered the RHR discharge lines as potential sources of a LOCA in the event of a fire in the control room. One plant (Monticello), has a similar design but has two closed, locally operated manual valves in the bypass line and therefore this problem does not appear to be pertinent for that plant. The two remaining plants (River Bend and Grand Gulf) do not have bypass lines around the check valves. Based on WNP-2's concern of thermal shocking the reactor vessel nozzle safe ends, it is not clear that this concern has been considered by these two plants and could potentially be more hazardous than the control room fire induced LOCA due to the higher frequency of using the RHR system in the shutdown cooling mode than of a fire in the control room.

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Based on our findings and the information provided by WNP-2, we are concerned that the same situation may exist at other nuclear power plants. We, therefore, recommend that an I&E information notice be issued to all operating plants and applicants for OLs identifying the above deficiency and requesting the utilities to confirm whether their alternate shutdown capability is subject to a similar concern, and to take the necessary action to correct the problem if appropriate. The information notice should also point out that the staff will confirm that their design is adequate as part of the fire protection inspections which are in progress and will continue over the next several years.

We are available to assist in the wording of the information notice and are prepared to provide other input to DL as may be needed. We believe the above course of action will acceptably deal with this problem.

Original signed by
L. S. Rubenstein

L. S. Rubenstein, Assistant Director
for Core and Plant Systems
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