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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

PLANT SYSTEMS BRANCH

REACTOR BUILDING CLOSED COOLING WATER (RBCCW) SYSTEM ISOLATION

MONTICELLO NUCLEAR GENERATING PLANT

DOCKET NO. 50-263

1.0 INTRODUCTION

In a letter dated July 14, 1989, Northern States Power Company, the licensee for Monticello, provided additional information for allowing a deviation of isolation provisions for the RBCCW containment penetrations. This was in response to a staff letter dated February 10, 1989. The issue originated with a safety systems functional inspection (SSFI) (Report 50-263/87005) which identified the concern that the RBCCW system isolation provisions do not comply with the General Design Criteria of 10 CFR Part 50, Appendix A. The portion of the system inside containment is nonsafety-grade and serves the drywell coolers, recirculation pump motor and seal water coolers, and equipment drain sump heat exchanger. The 8-inch containment inlet penetration contains two isolation valves; swing check valve (RBCC-15) and motor-operated valve MO-4229. The 8-inch outlet containment penetration contains two motor-operated valves, MO-1426 and MO-4230. The three motor-operated valves are manually controlled from the control room.

The staff concern as stated in the SSFI report is that an RBCCW break in containment, coincident with a LOCA, could result in fission product release to secondary containment via the RBCCW surge tank vent due to lack of automatic primary containment isolation. The licensee stated that the existing configuration was found acceptable by the staff in a letter dated March 21, 1980, and that BWROG reviewed the issue as part of NUREG-0737, Item II.E.4.2 and their conclusions support the adequacy of the existing configuration.

2.0 EVALUATION

The licensee stated that several indications and alarms will be available in the control room for a possible RBCCW leakage/line break and loss of RBCCW flow inside containment such as low system pressure and recirculation pump A/B low cooling flow, standby pump start, reactor water cleanup pump water temperature high, drywell floor drain sump pump high level, sump high leak rate, and RBCCW surge tank low level. The licensee indicated that when any one of these alarms is received, the control room operator is directed to the Abnormal Operating Procedures (AOP). If coincident conditions associated with the alarm as identified in the AOP are met, the operator is directed to restore the system or trip the pumps and close RBCCW containment isolation valves. Following a LOCA, the operators are instructed to manually isolate RBCCW even if no break or leak may exist in the RBCCW line. These valves are also isolated on loss of off-site power.

9005040227 900427
PDR ADOCK 05000263
P PDC

The licensee also stated that if for some reason the RBCCW penetrations were not isolated when any of the above alarms were received following a LOCA, the RBCCW system would be isolated on high radiation alarms which could annunciate if a leakage path existed from primary containment out through the RBCCW surge tank vent and overflow line under Emergency Operating Procedures.

The licensee also indicated that it has performed a probabilistic risk assessment study for Monticello which shows that the probability of a LOCA which results in a release to the secondary containment is 7.5×10^{-8} per year without automatic isolation and 9.4×10^{-10} per year with automatic isolation of the RBCCW system. This indicates that the risk associated with manual isolation of the RBCCW system is very low.

The staff has reviewed the licensee's submittal. Based on the control room indications for loss of RBCCW flow, administrative procedures to assure timely manual isolations of the RBCCW system, and the supporting very low risk associated with manual isolation to maintain containment integrity for Monticello as discussed above, the staff finds the requested deviation for manual isolation acceptable.

3.0 CONCLUSION

Based on the above evaluation, the staff concludes that the requested deviation for manual isolation of the RBCCW system from the automatic isolation requirement is acceptable for Monticello.

Principal Contributor: R. Goel

Date: April 27, 1990