



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 40 TO FACILITY OPERATING LICENSE NO. DPR-6
CONSUMERS POWER COMPANY
BIG ROCK POINT PLANT
DOCKET NO. 50-155

1.0 INTRODUCTION

By letter dated October 29, 1980, Consumers Power Company (the licensee) requested an amendment to Facility Operating License No. DPR-6 for the Big Rock Point Plant. This amendment would modify the Technical Specifications to reflect a change in the control rod drive system isolation boundary. This change is made by providing two additional check valves in the common suction line to the control rod drive pumps. The existing isolation boundary is provided by integral check valves in the control rod drive pumps. The licensee has requested this change because of the unsatisfactory leakage rate test history and high incidence of repair of the integral valves in the control rod drive pumps.

2.0 DISCUSSION AND EVALUATION

The licensee stated in the October 29, 1980 submittal that the previous isolation boundary for the suction side of the control rod drives at Big Rock Point plant had an unsatisfactory leakage rate history and an associated high frequency of maintenance outages. The licensee has proposed to change the isolation boundary, provided previously by integral check valves in the control rod drive (CRD) pumps, by the addition of two check valves (one inside and one outside the containment) to provide a new isolation boundary. The licensee has also proposed to perform type C tests on these newly installed check valves in lieu of tests of the integral check valves.

In this regard, we note that the licensee's proposal provides a more reliable and testable isolation boundary than the previous integral valves located inside containment in the control rod drive pumps. We see no basis to disagree with the proposed change in terms of the requirements of Appendix J to 10 CFR Part 50, and, therefore, conclude that the proposed change should be approved.

The staff has also reviewed the proposed isolation boundary for compliance with the provisions set forth in General Design Criterion (GDC) 55. We find that the proposed design for the Big Rock Point control rod drive system represents a departure from the explicit requirements of the GDC. The staff finds this departure to be justified and acceptable on the following bases.

It is the staff's view that having an automatic isolation valve on the CRD system outside the Big Rock Point containment instead of a check valve, as proposed, to satisfy the explicit requirements of GDC 55 would introduce a potential failure

mechanism in the CRD system. The risk associated with having such an automatic valve fail before a successful reactor scram in emergency situations would appear to exceed the risk associated with failure of the redundant check valves to isolate this line following an accident.

This view is based on the fact that the CRD line penetrating the containment is a small diameter (2-inch) line and is maintained constantly at a pressure toward the reactor vessel higher than the reactor vessel pressure by redundant pumps. In addition to the above basis, the CRD system performs a dual function. While its primary function is to move the control rods in and out of the core for normal and scram modes of operation, it also injects water to the vessel when the core is at high pressure (instead of actuating a safety valve for depressurization) and is a source of cooling water make up if other elements of the ECCS were to fail.

Based on the above justification, we find that for the Big Rock Point plant, a check valve outside the containment to prevent outleakage in case of a pipe break outside the containment is more desirable than an automatic isolation valve outside the containment. We conclude that the proposed change complies with the requirement of GDC 55 on bases other than those explicitly detailed in GDC 55. Our bases for this finding are detailed above. Accordingly, we conclude that the proposed change to the Technical Specifications is acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

4.0 CONCLUSION

We have concluded, based on the considerations discussed above, that: (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the amendment does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Date: January 23, 1981