



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 57 TO FACILITY
OPERATING LICENSE NO. DPR-46

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

DOCKET NO. 50-298

1. Introduction

Nebraska Public Power District (the licensee) has proposed changes to the Technical Specifications of Facility Operating License No. DPR-46 for Cooper Nuclear Station (CNS). The proposed changes permit operation of the CNS facility with the low pressure coolant injection (LPCI) system residual heat removal (RHR) pumps aligned in the shutdown cooling mode rather than the LPCI mode while performing training startups at atmospheric pressure at power levels less than 1% of rated power.

In addition the licensee has proposed certain administrative changes to the Technical Specifications which we have included in this Amendment.

2. LPCI Pump Alignment Background

It is advantageous to the licensee to be able to perform training startups from the cold shutdown condition while the RHR pumps are aligned for shutdown cooling. Technical Specification 3.5.A.3 requires the LPCI system (a mode of RHR) to be operable prior to performing a reactor startup from cold condition. The definition of operable contained in the Technical Specifications requires a system to be capable of performing its intended function in its required manner. For LPCI mode, the RHR pumps are aligned to take a suction on the torus, whereas in shutdown cooling the pumps are aligned to take a suction on the recirculation loops. Although the realignment of RHR to the LPCI mode is easily accomplished at the main control board, operator action is required. Once RHR is aligned to the LPCI mode, a realignment to shutdown cooling requires the header to be flushed. This places a burden on the radioactive waste disposal system.

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It should be noted that during a reactor cooldown the RHR system must be realigned from LPCI to the shutdown cooling mode. This alignment similarly renders the LPCI system "inoperable" in accordance with the strict Technical Specification definition.

Evaluation

The function of the LPCI system when at less than 1% rated power and at atmospheric pressure, is to makeup cooling water to the reactor coolant system in the event of a LOCA.

In the event of a LOCA it would be possible with BWR piping geometry to drain the core to a maximum of 2/3 core height. Further loss of water level could occur, if losses from steaming were not replenished.

Technical Specification 3.5.A.1(1) requires that both core spray sub-systems be operable prior to reactor startup from a cold shutdown. The makeup capacity of both core spray loops is at least 4720 gpm. The flow rate of a single core spray loop is sufficient to makeup much more water than the steaming losses from the reactor core at less than 1% power level. Thus, sufficient makeup water would be available given a single failure.

We have modified the licensee's proposed Technical Specification change so that it would require that the LPCI system remain operable except that the RHR pumps may be valved to draw water from the suction of the recirculation loop.

The recirculation loop would not be a source of makeup water in the event of a LOCA, however if the LPCI system were operable and time permitted, the control room operator could realign the RHR pumps to draw from the torus water supply as an additional source of makeup water.

Although no credit is taken in this review for makeup from the control rod drive cooling water systems and the reactor water cleanup systems, these systems are also normally available as a source of makeup water.

We conclude that operation, at less than 1% rated power and at atmospheric pressure with the RHR pumps in the shutdown cooling mode is acceptable.

3. Administrative Changes

Background

By letter dated November 29, 1978, the licensee requested various Technical Specification changes of an administrative nature which we have addressed in this licensing action. In addition we have taken this opportunity to make two corrections to previously issued Safety Evaluations.

Evaluation

- a. Table 3.2 F has been revised so that the instruments for the Suppression Chamber air and water temperatures are changed from an alarm unit to a recorder with an alarm function. This modification increases the accuracy and reliability of the monitoring system, and more accurately describes the equipment.
- b. The safety limit MCPR is revised from 1.06 to 1.07 in two places for consistency and to correct an earlier omission. This change is in a conservative direction.
- c. Reference to the count rate requirements during refueling is deleted, to eliminate redundancy. These requirements are fully stated in Technical Specification 3.10.
- d. Thirteen drywell penetrations are added to Table 3.7.2 of Testable Penetrations with Double O-Ring Seals. This addition increases safety by adding a testing requirement that did not exist before.
- e. Table 3.6.1 is revised to update the listing of safety related hydraulic snubbers accessible for testing. The original listing was based on the licensee's determinations, and the revised listing includes corrections in a previous error and revisions to reflect plant modifications.
- f. The wording which specifies the time at which drywell-suppression chamber differential pressure must be established is revised for greater precision.
- g. The Safety Evaluation for License Amendment No. 52 to License No. DPR-46 issued on September 29, 1978, incorrectly stated at the top of page that "no shielded cask movement will be permitted on the refueling deck prior to the completion of the cask drop analysis review". This sentence should be corrected to state "generic review is completed to the point that cask movement restriction is no longer necessary".

- h. The Safety Evaluation for License Amendment No. 43 to License No. DPR-46 issued on April 11, 1978 incorrectly stated at the bottom of the first page "this will be configured in a two-out-of-four coincidence logic per bus". This sentence should be corrected to state "this will be configured in a two-out-of-two coincidence logic per bus".

4. 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 Section 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.

5. 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.

Dated: May 23, 1979