



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 187 TO FACILITY OPERATING LICENSE NO. DPR-40

OMAHA PUBLIC POWER DISTRICT
FORT CALHOUN STATION, UNIT NO. 1

DOCKET NO. 50-285

1.0 INTRODUCTION

By application dated October 3, 1997, Omaha Public Power District (OPPD) requested changes to the Technical Specifications (Appendix A to Facility Operating License No. DPR-40) for the Fort Calhoun Station (FCS), Unit No. 1. The requested changes would revise TS Section 3.9, "Auxiliary Feedwater System," (AFW) by (1) changing the verification of valve alignment after maintenance to verifying only valves "affected" by maintenance, (2) changing AFW pump acceptance criteria to delete a 40 psig requirement, (3) changing valve testing and surveillance frequencies, and (4) changing the frequency requirement for testing the AFW flow paths. Accordingly, the Bases would be changed to clarify each of the above surveillance requirement changes. There will be no physical alterations to the plant configuration or changes in operating modes.

The May 18, 1998, supplemental letter provided additional clarifying information that did not change the initial no significant hazards consideration determination published in the Federal Register on December 3, 1997 (62 FR 63982).

2.0 BACKGROUND

FCS has two safety related AFW pumps, one motor-driven and one turbine-driven. In addition, there is a diesel-driven non-safety related pump. All three pumps are 100 percent capacity pumps, capable of providing sufficient feedwater to cool the plant to conditions required to initiate the shutdown cooling system. The two safety related pumps use the emergency feedwater storage tank (EFWST) as their source of feedwater, whereas the non-safety related pump utilizes the condensate storage tank. There are several flow paths from the AFW pumps to each steam generator. Both safety related AFW pumps feed into a common header which then may go into several flow paths. One set of flow paths to the steam generators is through HCV-1384 to valves HCV-1105 (to steam generator RC-2A) and HCV-1106 (to steam generator RC-2B) utilizing the main feedwater piping. Additional flow paths are those actuated by a auxiliary feedwater actuation signal (AFAS). These flow paths are through valves HCV-1107A/ HCV-1107B and HCV-1108A/ HCV-1108B.

The speed of the turbine-driven AFW pump is governed by a differential pressure controller which maintains the pump discharge pressure at a fixed differential pressure greater than the steam pressure entering the turbine. The original Final Safety Analysis Report (FSAR) stated that the differential pressure could be set in the field, and that it would be set so that the pump discharge is about 40 psi above the steam generator pressure at rated flow. The motor-driven AFW pump is a constant speed pump with a shutoff pressure of approximately 1200 psig.

3.0 EVALUATION

3.1 AFW Valve Maintenance

The licensee proposes to clarify TS 3.9(1) to state that following AFW system maintenance, only the valves "affected" by the maintenance are checked for proper alignment. Alignment of the system valves not affected by the maintenance are verified by the monthly alignment check. Clarification is also being added to the Bases of TS 3.9(1) to state that following AFW system maintenance, only those valves affected by the maintenance are verified to be in the correct position. Since the proposed change ensures that valves are properly aligned following maintenance or by the monthly alignment checks the change to the surveillance requirement and its associated Bases is acceptable.

3.2 AFW Pump Discharge Pressure

The licensee proposes to revise TS 3.9(2) to delete the 40 psig specified for the AFW pump's discharge pressure. Currently, TS 3.9(2) requires that the operability of both the motor-driven and steam turbine-driven AFW pump be confirmed monthly and that the discharge pressure be verified to be at least 40 psig above the steam generator pressure at rated flow. The requirement to be at least 40 psig above the steam generator pressure was incorporated by Change Number 7 to the TS, dated February 28, 1974, to correspond to the setting for the pneumatic speed control loop for the turbine-driven AFW pump specified in the original FSAR. On a loss of instrument air to the speed control loop, the turbine-driven AFW pump goes to maximum speed as controlled by the speed limiting governor. The 40 psig value is not relevant to the operation of the motor-driven AFW pump.

AFW pump performance parameters and the pump's ability to function under post accident conditions are measured and evaluated quarterly under the station's Inservice Testing (IST) program. These quarterly surveillance tests for both the motor-driven and turbine-driven AFW pumps verify that sufficient head is developed to inject an adequate supply of feedwater into the steam generators under worst case pressures at the point when auxiliary feedwater is required. Because of this extensive quarterly testing, it is not necessary to verify on a monthly basis that the pump develops a specified amount of head. The above quarterly tests are in addition to those required by TS 3.3, which implements ASME Section XI IST to evaluate a pump's performance against its pump curve to determine operability. The proposed change would remove a duplicate testing requirement. Since the quarterly tests ensure adequate pump

performance and discharge pressure for both safety-related AFW pumps, the change to the surveillance requirement is acceptable.

3.3 AFW Regulating Valve Testing

The licensee proposes to revise TS 3.9(3) to delete the reference to testing the AFW regulating valves at least every three months to state that testing will be in accordance with the IST program. The IST program is controlled by TS 3.3 and requires these valves to be tested quarterly and therefore, there is no change in the frequency of testing. Clarification is also being made to the basis description for the AFW regulating valves to state that testing is in accordance with the IST program and to delete the description of confirming a flow path. TS 3.9(3) only verifies operability of the valves; the flow path is verified by TS 3.9(4). Since the change only clarifies a testing requirement and its Bases, the change is acceptable.

3.4 AFW System Flow Path Test Frequency

TS 3.9(4) provides for verification of the alignment of the required AFW flow paths by verifying flow from the emergency feedwater storage tank to each steam generator prior to raising the reactor coolant temperature above 300°F whenever the unit has been in Mode 4/5. The licensee proposes to change the surveillance frequency in TS 3.9(4) from "whenever the unit has been in Modes 4/5," to performance if the unit "has been in Mode 4 and/or 5 for greater than 30 days," in other words, whenever the reactor coolant temperature has been below 210°F for a total of more than 30 days.

This change would make the surveillance frequency consistent with the recommendation of NUREG-0635, "Generic Evaluation of Feedwater Transients and Small Break Loss-of-Coolant Accidents in Combustion Engineering Designed Operating Plants," that it be done after extended cold shutdowns, and with NUREG-1432 (CE Improved Standard TS) which describes an extended cold shutdown as one longer than 30 days in duration. Since the proposed change is consistent with NUREG-0635 and NUREG-1432, the change is acceptable.

Additionally, the Bases section is being reorganized and surveillance numbers are being added to coincide with the order of the surveillance. A more complete description of the safety related function of the AFW system is proposed for addition to the Bases section. The licensee proposes to specify that the flow paths are verified operable prior to applicability of the specification (prior to 300°F) by utilizing the motor-driven AFW pump and the flow paths from the EFWST to the steam generators through valve HCV-1384 and valves HCV-1105 and HCV-1106 and the main feedwater piping. Since both safety related AFW pumps feed into a common header, only the motor-driven AFW pump is necessary to verify these flow paths. Prior to making the reactor critical, after steam is available, the turbine-driven AFW pump is tested by recirculating water from the EFWST. These changes are clarifications of existing requirements and are acceptable.

3.5 Automatic AFW Initiation

The licensee proposes to change TS 3.9(5) Bases to state that the testing required by TS 3.9(5) for the automatic AFW initiation is accomplished by utilizing overlapping tests that verify the instrumentation, valves and motor-driven pump are operable, with the steam turbine-driven pump tested separately to verify its operability. Since this proposed change is a clarification of the testing basis and does not change the frequency of testing or determination of pump operability, the changes are acceptable.

3.6 Summary

The proposed changes to TS 3.9 do not make physical alterations to the plant configuration or changes in operating modes. The proposed change to delete the specific discharge pressure of the AFW pumps from the TS is consistent with the ASME Code Section XI requirements that are controlled by TS 3.3. The clarifications being provided to describe the AFW flow paths only provide additional information for testing required to meet the recommendation of NUREG-0635.

The proposed changes will not affect the operability requirements of the AFW system and the AFW system will still function as designed to mitigate the consequences of design basis accidents. Therefore, there is no adverse impact on public health and safety.

The above changes clarify the existing technical specifications, change the specification to be consistent with the Combustion Engineering Standard Technical Specifications or delete requirements which are redundant to existing ASME requirements. Other changes made are editorial, clarifications, or administrative in nature. The staff review concluded that based on the information provided, these changes are acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Nebraska State official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (62 FR 63982). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

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