

DESCRIPTION OF PROPOSED CHANGE NPF-15-88
AND SAFETY ANALYSIS

This is a request to revise Technical Specification 3.7.1.2, AUXILIARY FEEDWATER SYSTEM.

Existing Specification

3.7.1.2 At least three independent steam generator auxiliary feedwater pumps and associated flow paths shall be OPERABLE with:

- a. Two motor-driven auxiliary feedwater pumps, each capable of being powered from separate emergency busses, and
- b. One steam turbine-driven auxiliary feedwater pump capable of being powered from an OPERABLE steam supply system.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

- a. With one auxiliary feedwater pump inoperable, restore the required auxiliary feedwater pumps to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- b. With two auxiliary pumps inoperable, be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours.
- c. With three auxiliary feedwater pumps inoperable, immediately initiate corrective action to restore at least one auxiliary feedwater pump to OPERABLE status as soon as possible.

Proposed Specification

3.7.1.2 At least three* independent steam generator auxiliary feedwater pumps and associated flow paths shall be OPERABLE with:

- a. Two* motor-driven auxiliary feedwater pumps, each capable of being powered from separate emergency busses, and
- b. One steam turbine-driven auxiliary feedwater pump capable of being powered from an OPERABLE steam supply system.

APPLICABILITY: MODES 1, 2 and 3.*

ACTION:

- a. With one auxiliary feedwater pump inoperable, restore the required auxiliary feedwater pumps to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

- b. With two auxiliary pumps inoperable, be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours.
- c. With three auxiliary feedwater pumps inoperable, immediately initiate corrective action to restore at least one auxiliary feedwater pump to OPERABLE status as soon as possible.

*Prior to initial criticality, entry into and operation in MODE 3 is permitted provided that one motor-driven auxiliary feedwater pump and one steam-driven auxiliary feedwater pump are OPERABLE.

Description

On Monday, July 11, 1983, it was determined that the motor for Unit 3 motor-driven auxiliary feedwater (AFW) pump P-504 has a warped shaft. This has necessitated return of the motor to the manufacturer (Siemens-Allis) for refurbishment which will take approximately six weeks. With the inoperability of P-504, Technical Specification 3.7.1.2 prohibits Unit 3 entry into MODE 3, which was scheduled for July 12, 1983, and continuation of pre-criticality testing. There are approximately four weeks of tests which remain to be completed in MODE 3. The proposed change allows entry into and operation in MODE 3, prior to initial criticality, with AFW pump, P-504 inoperable. This will allow completion of the remaining Unit 3 pre-criticality functional tests concurrent with refurbishment of the P-504 motor by the manufacturer. The proposed change thus eliminates an approximate four week scheduler delay which will occur if the remainder of the testing to be conducted in MODE 3 cannot be completed until P-504 is returned to operable status.

Safety Analysis

The proposed change discussed above shall be deemed to involve a significant hazards consideration if there is a positive finding in any one of the following areas:

1. Will operation of the facility in accordance with this proposed change involve a significant increase in the probability or consequences of an accident previously evaluated.

Response: No

The operability requirements imposed on the AFW system ensure that a capability exists to remove sensible and decay heat from the reactor coolant system (RCS) to effect a cooldown to shutdown cooling entry conditions. The proposed change is applicable only prior to initial criticality, during which time there is neither a decay heat load nor a fission product inventory.

The FSAR Chapter 15 accident analyses were reviewed to determine the potential effects of the proposed change on the probability and consequences of these accidents. The proposed change is considered to have no adverse effects on the probability or consequences of these accident scenarios if:

- 1) The initial conditions of the accident are clearly outside the bounds of the applicability of the proposed change (e.g., loss of load, which must occur from a condition of power operation), or

- 2) No credit is taken for AFWS action in the accident sequence, or
- 3) The event does not result in an approach to criticality and generation of sensible heat.

Therefore, the subset of accident analyses which are potentially affected adversely by the proposed change is limited to the following:

- 1) Increase in secondary heat removal with concurrent single failure
- 2) Steam line break
- 3) Feed line break (Downstream of check valve)
- 4) CEA ejection

Of these four cases, only Case 1 includes events which may be initiated by the AFWS (i.e., RCS overcooling due to excess auxiliary feedwater addition). However, the potential for such events is reduced by the proposed change, which reduces the number of available AFWS pumps from 3 to 2).

Insofar as the effect on consequences, Cases 1 through 3 result an increase in reactivity due to increased RCS heat removal and consequent moderator cooldown. However, criticality is precluded because at most one CEA will be withdrawn from the fully inserted position and refueling boron concentration will be maintained in the RCS during the applicability of the proposed change. Therefore, no decay heat load or fission product inventory will result and the AFWS will not be required to mitigate these events. The consequences will accordingly be less severe than the corresponding zero power events previously evaluated in the FSAR.

A specific analysis has not been performed to determine if Case 4 will result in criticality from the highly rodded, fully borated condition which will exist during the applicability of the proposed change. However, Case 4 is initiated by a passive failure of the RCS pressure boundary (at a CEA housing) and as such does not require postulating an independent concurrent passive failure of the AFW pump turbine steam supply. Consequently, for concurrent single active failure of one AFWS train, an intact AFWS train will remain available to assist the HPSI system in removing decay heat to mitigate the event. Because there is no initial decay heat or fission product inventory for this event, and at least one AFWS train remains available, the consequences of a CEA ejection during applicability of the proposed change will be less severe than the zero power CEA ejection event previously evaluated in the FSAR.

Based on the above, it is concluded that the proposed change does not involve a significant increase in the probability or consequences of any accident previously evaluated.

2. Will operation of the facility in accordance with this proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No

The proposed change affects only auxiliary feedwater pump operability requirements prior to initial criticality. It does not affect the AFWS actuation logic nor does it otherwise significantly alter the configuration of the plant or its operation. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Will operation of the facility in accordance with the proposed change involve a significant reduction in a margin of safety?

Response: No

The reduction in auxiliary feedwater pump operability requirements prior to initial criticality allowed by the proposed change are more than compensated for by the absence of decay heat and fission product inventory in the clean core. As discussed above, the proposed change does not significantly increase the probability or consequences of any previously evaluated accident or create the possibility of any accident not previously evaluated. Therefore, the proposed change does not result in a significant reduction in a margin of safety.

Safety and Significant Hazards Determination

Based on the Safety Evaluation, it is concluded that: (1) the proposed change does not constitute a significant hazards consideration as defined by 10 CFR 50.92; and (2) there is reasonable assurance that the health and safety of the public will not be endangered by the proposed change; and (3) this action will not result in a condition which significantly alters the impact of the station on the environment as described in the NRC Final Environmental Statement.

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