ATTACHMENT I TO IPN-88-053
PROPOSED TECHNICAL SPECIFICATIONS
AUXILIARY FEEDWATER PUMPS

NEW YORK POWER AUTHORITY
INDIAN POINT 3 NUCLEAR POWER PLANT
DOCKET NO. 50-286
DPR-64

3.4 STEAM AND POWER CONVERSION SYSTEM

Applicability

Applies to the operating status of the Steam and Power Conversion System.

Objective

To define conditions of the turbine cycle steam-relieving capacity. Auxiliary Feedwater System operation is necessary to ensure the capability to remove decay heat from the core.

Specification

A. The reactor shall not be heated above 350°F unless the following conditions are met:

(1) A minimum ASME Code approved steam-relieving capability of twenty (20) main steam valves shall be operable (except for testing).

(2) Three out of three auxiliary feedwater pumps must be operable.

(3) A minimum of 360,000 gallons of water in the condensate storage tank.

(4) System piping and valves directly associated with the above components operable.

(5) The main steam stop valves are operable and capable of closing in five seconds or less.

(6) Two steam generators capable of performing their heat transfer function.

(7) City water system piping and valves directly associated with providing backup supply to the auxiliary feedwater pumps are operable.

B. Except as modified by E. below, if during power operations any of the conditions of 3.4-A above, except Item (2), cannot be met within 48 hours, the operator shall start to shutdown and cool the reactor below 350°F using normal operation procedures.

C. If during power operations, the requirement of 3.4.A.2 is not satisfied, the following actions shall be taken:

1) With one auxiliary feedwater pump inoperable, restore the pump to operable status within 72 hours or be in hot shutdown within the next 12 hours.

2) With two auxiliary feedwater pumps inoperable, be in hot shutdown within 12 hours.

3) With three auxiliary feedwater pumps inoperable, maintain the plant in safe stable mode which minimizes the potential for a reactor trip and, immediately initiate corrective action to restore at least one auxiliary feedwater pump to operable status as soon as possible .

D. The gross turbine-generator electrical output at all times shall be within the limitation of Figure 3.4-1 or Figure 3.4-2 for the application conditions of turbine overspeed setpoint, number of operable low pressure steam dump lines, and condenser back pressure as noted thereon.

E. The reactor shall not be heated above 350°F unless both valves in the single auxiliary feedwater supply line from the Condensate Storage Tank are open. If, during power operations, it is discovered that one or both of the valves are closed, the following action shall be taken:

1) Immediately place the auxiliary feedwater system in the manual mode,

2) Within one hour either:

a) reopen the closed valve(s),

or

b) open the valves to the alternate city water supply,

and

3) Once a water supply has been restored, return the system to the automatic mode.

If the above action cannot be taken, then:

a) maintain the plant in a safe stable mode which minimizes the potential for a reactor trip,

and

b) continue efforts to restore water supply to the auxiliary feedwater system,

and

c) notify the NRC within 24 hours regarding planned corrective action.

Basis

A reactor shutdown from power requires removal of core decay heat. Immediate decay heat removal requirements are normally satisfied by the steam bypass to the condensers. Thereafter, core decay heat can be continuously dissipated via the steam bypass to the condenser as feedwater in the steam generator is converted to steam by heat absorption. Normally, the capability to feed the steam generators is provided by operation of the turbine cycle feedwater system. The twenty main steam safety valves have a total combined rated capability of 15,108,000 lbs/hr. The total full power steam flow is 12,974,500 lbs/hr.; therefore twenty (20) main steam safety valves will be able to relieve the total steam flow if necessary.

In the unlikely event of complete loss of electrical power to the station, decay heat removal would continue to be assured by the availability of either the steam-driven auxiliary feedwater pump or one of the two motor-driven auxiliary steam generator feedwater pumps and steam discharge to the atmosphere via the main steam safety valves and atmospheric relief valves. One motor-driven auxiliary feedwater pump can supply sufficient feedwater for removal of decay heat from the plant. The minimum amount of water in the condensate storage tank is the amount needed for 24 hours at hot shutdown. When the condensate storage supply is exhausted, city water will be used.

Two steam generators capable of performing their heat transfer function will provide sufficient heat removal capability to remove core decay heat after a reactor shutdown.

The limitations placed on turbine-generator electrical output due to conditions of turbine overspeed setpoint, number of operable steam dump lines, and condenser back pressure are established to assure that turbine overspeed (during conditions of loss of plant load) will be within the design overspeed value considered in the turbine missile analysis. [2] In the preparation of Figures 3.4-1 and 3.4-2, the specified number of operable L.P. steam dump lines is shown as one (1) greater than the minimum number required to act during a plant trip. The limitations on electrical output, as indicated in Figures 3.4-1 and 3.4-2, thus consider the required performance of the L.P. Steam Dump System in the event of a single failure for any given number of operable dump lines.

ATTACHMENT II TO IPN-88-053
SAFETY EVALUATION OF PROPOSED
TECHNICAL SPECIFICATION CHANGE
AUXILIARY FEEDWATER PUMPS

NEW YORK POWER AUTHORITY
INDIAN POINT 3 NUCLEAR POWER PLANT
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I. Description of Change

Technical Specification 3.4.B provides the limiting condition of operation (LCO) for the auxiliary feedwater pumps. The proposed change will revise Technical Specification 3.4 to reflect the applicable LCOs provided by the Westinghouse Standard Technical Specifications.

II. Evaluation of Change

Technical Specification 3.4.B provides that if the requirement of three operable auxiliary feedwater pumps cannot be met within 72 hours, the reactor shall be in hot shutdown within the next 12 hours. This wording renders the specification applicable to all possible conditions, independent of the number of the inoperable auxiliary feedwater pumps. The Westinghouse Standard Technical Specifications provide LCOs which are dependent on the number of inoperable auxiliary feedwater pumps. The proposed change will revise Technical Specification 3.4 to reflect the applicable LCOs provided by the Westinghouse Standard Technical Specifications.

When one auxiliary feedwater pump is inoperable, the Westinghouse Standard Technical Specifications requires that if the pump is not restored to operable status within 72 hours, the plant must be in hot shutdown within 12 hours thereafter. Therefore, for one auxiliary feedwater pump inoperable, the existing Technical Specification 3.4.B requirement is equivalent to that provided by the Westinghouse Standard Technical Specifications.

When two auxiliary feedwater pumps are inoperable, the Westinghouse Standard Technical Specifications require the plant to be in hot shutdown within 12 hours. A literal interpretation of existing Technical Specification 3.4.B would allow 72 hours of continued operations in which to restore the two pumps to operable status, and if that is not accomplished the plant must be in hot shutdown within 12 hours thereafter. This literal interpretation of the Indian Point 3 Technical Specification allows 72 hours of subsequent plant operations not provided for by the Westinghouse Standard Technical Specifications. The proposed change will revise Technical Specification 3.4 to reflect the more stringent requirements of the Westinghouse Standard Technical Specifications.

When three auxiliary feedwater pumps are inoperable, the Westinghouse Standard Technical Specifications require that immediate corrective action be undertaken to restore at least one auxiliary feedwater pump to operable status as soon as possible. While this provision does not have a plant shutdown

requirement, it is implicit that when one pump is restored to operable status, the plant will be shut down in accordance with the LCO for the two inoperable pump condition. The rationale for not requiring immediate plant shutdown when the three auxiliary feedwater pumps are inoperable is that continued plant operations is a safer mode of operation than undergoing plant shutdown with no operable auxiliary feedwater pumps. Therefore, if none of the three inoperable pumps could be restored to operable status within 72 hours, a literal interpretation of Technical Specification 3.4.B would result in a reduction in the level of safety. Hence, the proposed change will revise Technical Specification 3.4 to reflect this Westinghouse Standard Technical Specification requirement.

III. No Significant Hazards Evaluation

In accordance with the requirements of 10 CFR 50.92, the application has been determined to involve no significant hazards based on the following:

1) Does the proposed license amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response

The proposed amendment involves a revision to the current LCO for the auxiliary feedwater pumps to reflect the applicable LCOs provided by the Westinghouse Standard Technical Specifications. The proposed amendment will provide a LCO based on the number of inoperable pumps. The proposed LCOs for the situations of one and two pumps inoperable are equivalent or more stringent than the existing LCO. The proposed LCO for the situation of three pumps inoperable reflects the fact that continued plant operations with three inoperable auxiliary feedwater pumps is a safer mode of operation than commencing plant shutdown in such a condition. As such, this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2) Does the proposed license amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response

The proposed amendment does not involve any physical alteration to the auxiliary feedwater system or to any other plant system or structure. The change does not affect the operation of any plant system. Hence, the possibility of a new or different kind of accident from any accident previously evaluated is not created by this change.

3) Does the proposed amendment involve a significant reduction in a margin of safety?

Response

The proposed amendment involves a revision to the current LCO for the auxiliary feedwater pumps to reflect the applicable LCOs provided by the Westinghouse Standard Technical Specifications. The proposed amendment will provide a LCO based on the number of inoperable pumps. The proposed LCOs for the situations of one and two inoperable pumps are equivalent or more stringent than the existing LCO. The proposed LCO for the situation of three inoperable pumps reflects the fact that continued plant operations with three inoperable auxiliary feedwater pumps is a safer mode of operation than commencing plant shutdown in such a condition. As such, the proposed amendment does not involve a significant reduction in a margin of safety.

IV. IMPACT OF CHANGE

This change will not impact the following:
- ALARA Program
- Fire Protection Program
- Emergency Plan
- FSAR or SER Conclusions
- Overall Plant Operations

V. CONCLUSION

This change: a) will not increase the probability nor the consequences of an accident or malfunction of equipment important to safety as previously evaluated in the Safety Analysis Report; b) will not increase the possibility for an accident or malfunction or a different type than evaluated previously in the Safety Analysis Report; c) will not reduce the margin of safety as defined in the basis for any Technical Specification; d) does not constitute an unreviewed safety question as defined in 10 CFR 50.59; e) involves no significant hazards considerations as defined in 10 CFR 50.92.

VI. REFERENCES

a) IP-3 FSAR
b) IP-3 SER
c) Westinghouse Standard Technical Specifications, NUREG-0452.