



Department of Energy
Washington, D.C. 20545

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Dr. J. Nelson Grace, Director
CRBR Program Office
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Dr. Grace:

ADDITIONAL INFORMATION ON AUXILIARY FEEDWATER SYSTEM VALVES - CLINCH
RIVER BREEDER REACTOR PLANT

Enclosed are amended Preliminary Safety Analysis Report (PSAR) pages 5.6-8
and 13 that clarify the description of the auxiliary feedwater system valves
as requested by the Nuclear Regulatory Commission staff reviewer. These
pages will be included in the next amendment to the PSAR.

Questions concerning the enclosure may be directed to Mr. D. Florek (FTS 626-6188)
or Mr. D. Robinson (FTS 626-6098) of the Project Office Oak Ridge staff.

Sincerely,

John R. Longenecker
Acting Director, Office of
Breeder Demonstration Projects
Office of Nuclear Energy

2 Enclosures

cc: Service List
Standard Distribution
Licensing Distribution

Dool

The pump discharge lines contain check valves to prevent back flow through inoperable pumps. The motor driven pump discharge lines also contain a manually operated, locked open isolation valve downstream of the check valve. All three Class 3 discharge lines also have a 2 inch pump recirculation line containing an electrically-operated, normally closed isolation valve, branching off and running back to the PWST.

e. Auxiliary Feedwater Supply Lines

The six auxiliary feedwater supply lines from both the turbine and motor driven pump discharge headers are 4 inch diameter and contain (in order and in direction of flow) a manually operated, locked open isolation valve; a normally open electro-hydraulic control valve; a normally closed, electric operated isolation valve; and a manually operated, locked open isolation valve. After the final isolation valve, the turbine and motor driven pump supply lines are joined. The resulting 4 inch carbon steel line, which contains two check valves and a manual isolation valve, is then routed to the steam drum.

Routing of the auxiliary feedwater supply lines is such that high pressure lines (high pressuring during normal plant operation) are not located in cells containing the PWST, auxiliary feedwater pumps or other SGAHRS equipment whose failure could cause a loss of SGAHRS safety function.

f. AFW Pump Test Loop

Downstream of the tee where the motor-driven and turbine-driven pump supply lines join at the loop #1 valve station, an AFW pump test line returns flow to the protected water storage tank during periodic testing. This line contains redundant automatic valves for isolating the AFW supply from the PWST should SGAHRS be initiated during testing.

g. Steam Supply Line From Steam Drum to AFW Drive Turbine

There are three 4 inch steam supply lines, one from each steam drum. Each of these lines contains a locked open, manual isolation valve, an ~~electrically~~ ^{Electrohydraulic} operated, normally closed isolation valve, a check valve, and another locked open, manual isolation valve. Downstream of the final isolation valves, the three lines are headered together. The resulting 4 inch line then passes through a normally closed, electrohydraulic operated pressure control valve before entering the drive turbine.

Routing of the turbine steam supply lines is such that they do not pass through the PWST cell. When the turbine lines pass through adjacent cells, protection is provided from missiles and jet impingement.

Auxiliary Feedwater Supply Isolation Valve

The electrically-operated valve in each of the six steam drum auxiliary feedwater supply lines is the only valve in the main flow paths of the SGAHRS that is normally closed during plant operation. Inadvertent opening of this valve will not affect the operability of the SGAHRS or of the plant because redundant check valves will prevent reverse flow.

Control Valve

The electro-hydraulic operated control valve in each of the six steam drum auxiliary feedwater supply lines will fail "as is" upon loss of electrical power to the valve, thereby allowing feedwater supply to continue. If a failure occurs in the control signal to the valve, and the valve opens to greater flow than required, the steam drum level in the affected loop could possibly rise to the trip level. Closure of the motor driven and turbine driven auxiliary feedwater supply system isolation valves for the affected loop will be initiated by independent logic trains when the steam drum level rises to 8 and 12 inches above normal, respectively. Auxiliary feedwater supply to that steam drum would be terminated until the level fell below the drum level setpoint. The isolation valve would then open and flow would be supplied until reaching the trip point. The sequence would then be repeated. Heat removal capabilities would be available through all loops.

Drive Turbine Steam Supply Isolation Valve

The ~~electrically~~ ^{electrohydraulicly} operated valve in each of the three steam lines to the feedwater pump drive turbine is in series with the normally closed pressure ~~control~~ ^{isolation} valve. Inadvertent opening of ~~this valve~~ ^{any of these isolation valves} will not have an adverse affect on the SGAHRS system or the rest of the plant. Inadvertent closure during SGAHRS operation will have no effect due to the redundant steam supplies from each drum.

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