



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

JUL 2 1982

MEMORANDUM FOR: Joseph D. LaFleur, Jr., Assistant Director for International Cooperation, OIP

FROM: W. F. Kane, Project Manager, Licensing Branch No. 1, DL

SUBJECT: EXPERT REVIEW OF KRSKO STEAM GENERATOR CHANGES

My memorandum to you dated June 9, 1982 provided a preliminary response to your memorandum to D. Eisenhut dated May 26, 1982 regarding modifications to the KRSKO plant. Subsequently, the staff experts assigned to this activity have reviewed the additional materials provided by you to determine if that preliminary response should be modified. They have concluded that ~~their preliminary comments~~ still apply. However, as a result of reviewing the new information they have identified ~~certain additional matters which should be assessed prior to developing any final conclusions~~. These matters are identified in the enclosure.

~~This completes the activity identified in your May 26, 1982 memorandum to D. Eisenhut.~~ Please let me know if you have any questions regarding the enclosed material.

A handwritten signature in black ink, appearing to read "W. F. Kane".

W. F. Kane, Project Manager
Licensing Branch No. 1
Division of Licensing

cc: V. Stello
T. Rehm
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ENCLOSURE

19. Functional diagrams B-802-080 and W 7250D71, and loop diagrams B-808-C80 and W 7249D24.
20. Electrical schematic diagrams showing the valve control circuits for the FIV, FIBV, FCV, FCBV, FACV, FPBV, FPV, and FBTV. These diagrams should show both control and protection system (main feedwater isolation) signals used to modulate these valves.
21. It is stated that a minimum tempering flow rate of one percent of rated loop flow is required whenever the FIV is open and that interruptions of the tempering flow should be limited to one minute in duration. Explain how the required minimum flow rate will be maintained without excessive interruptions, the consequences of prolonged flow interruptions, and describe the indication/annunciation available to alert the operator of the loss of tempering flow.
22. Description of the position indication provided for all valves in the main feedwater bypass system (FIV, FIBV, FCV, FCBV, FACV, FPBV, FPV, and FBTV), and all indication/annunciation provided to alert the operator to system maloperation.
23. Discussion of the extent to which the system logic operational test described in Section 3-10 (Operating Procedures for Counter-Flow Preheat Steam Generator Main Feedwater Bypass System with Concurrent Feedwater Flow - April 1982) include verification of proper valve operation as well as logic train functioning.
24. Description of how the FIBV and FPV are closed if a rapid decrease in steam pressure of 50 psi, or greater, should occur during startup from hot shutdown. Is this done automatically?
25. Discussion of the extent to which the main feedwater bypass system is environmentally qualified for secondary system ruptures.
26. Description of the operation of the low power automatic feedwater control system and any interaction it has with the main feedwater bypass system.
27. During a heat up test of KRSKO plant in July 1981, a steam bubble collapse waterhammer caused some damage to the auxiliary feedwater piping. In order to determine its relevance to the modified design the following information on this waterhammer event should be assessed: (i) Water level in the steam generator with respect to auxiliary feedwater nozzle elevation; (ii) Secondary pressure in the steam generator; (iii) Flow rates of all feedwater sources in the steam generator; (iv) Schematic drawing showing the piping arrangement adjacent to the auxiliary feedwater nozzle showing elbows, valves, and piping dimensions.