



Nebraska Public Power District

COOPER NUCLEAR STATION
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August 31, 1982

50-298

Mr. Domenic B. Vassallo, Chief
Operating Reactors Branch #2
Division of Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: NUREG-0737, Item II.K.3.22, "Automatic Switchover of Reactor
Core Isolation Cooling System Suction"

Reference: 1) Letter from D. B. Vassallo to J. M. Pilant dated
August 5, 1982

Dear Mr. Vassallo:

Reference 1 required Nebraska Public Power District to respond to
questions concerning acceptance criteria for automatic switchover of the
reactor core isolation cooling system suction. Attached are responses
to those questions.

If additional clarification on any item is necessary, please contact me.

Sincerely,

Jay M. Pilant
Division Manager of Licensing
and Quality Assurance

JMP:RWK:lb

Attachment

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Question No. 1:

Modifications to the Reactor Core Isolation Cooling (RCIC) System shall be designed, fabricated, erected and tested to the quality standards commensurate with the importance of the safety functions to be performed, i.e., RCIC modifications shall satisfy the same criteria used in the original RCIC design. Therefore, if the RCIC system is not a safety grade system, then the automatic switchover sensors and circuitry need not be safety grade. However, those portions of the system which were considered to be safety grade in the original licensing basis, such as containment isolation logic and circuitry, shall be safety grade. In addition, nonsafety grade logic and circuits shall be appropriately isolated from safety grade logic and circuits.

Response to Question No. 1:

The level switches and relays used in the automatic switchover modification were supplied with the original equipment. The wiring used was of the same grade as originally installed. Modification to the RCIC automatic switchover did not degrade logic and circuitry.

Question No. 2:

Regardless of whether the RCIC system is a safety grade system or not, the automatic switchover sensors and circuitry should meet the criteria of IEEE Std. 279-1971 sections 4.9, "Capability for Sensor Checks," and 4.10, "Capability for Test and Calibration".

Response to Question No. 2:

The level switches and their corresponding relays are periodically tested per Surveillance Procedure 6.2.2.3.4. This procedure fully meets the criteria of IEEE Std. 279-1971 sections 4.9 and 4.10.

Question No. 3:

The capability of remote manual switchover (in addition to automatic switchover), the capability of remote manual RCIC flow termination, and the capability of remote manual containment isolation shall be retained.

Response to Question No. 3:

Reactor Core Isolation Cooling (RCIC) valves MO-18 (RCIC pump suction from the Emergency Condensate Storage Tanks) and MO-41 (RCIC pump suction from the Torus) have control switches in the Control Room. This modification does not inhibit remote manual switchover, flow termination, or containment isolation.

Question No. 4:

The automatic switchover sensors and circuitry shall be designed for and tested to meet the same seismic design criteria as was used for the RCIC system.

Response to Question No. 4:

The level switches and relays used in the automatic switchover modification were supplied with the original equipment. The qualification of sensors and relays is being reviewed under the Cooper Nuclear Station Equipment Qualification Program.

Question No. 5:

The RCIC automatic switchover sensors and circuitry shall be environmentally qualified to the same criteria as was used for the RCIC system.

Response to Question No. 5:

The level switches and relays used in the automatic switchover modification were supplied with the original equipment. The qualification of sensors and relays is being reviewed under the Cooper Nuclear Station Equipment Qualification Program.

Question No. 6:

The logic for the switchover shall be such that the condensate storage tank suction valve is not closed until the suppression pool suction valves are fully open.

Response to Question No. 6:

The switchover logic was designed such that the RCIC pump suction valve from the Torus (MO-41) must be fully open before the pump suction valve from the Emergency Condensate Storage Tank (MO-18) closes.

Question No. 7:

The design shall be such that no single failure within any equipment added to accomplish the automatic switchover of RCIC will interfere with operation of the HPCI system or interfere with the transfer of HPCI suction from the condensate storage tank to the suppression pool.

Response to Question No. 7:

Two level sensors on each Emergency Condensate Storage Tank (ECST) provide redundant low level signals to each HPCI/RCIC switchover relay. A failure of either level sensor on a given ECST will not prevent the switchover relays from operating.

Response to Question No. 7 (Continued):

The ECST's are cross-connected through a 14" line with locked open valves. Therefore, both ECST's are at the same water level.

The switchover relays (2) are powered from separate, 125VDC power supplies. Each relay operates a redundant contact in the opening circuits for HPCI-MO-58 (HPCI pump suction from the Torus) and RCIC-MO-41 (RCIC pump suction from the Torus). Therefore, with both ECST's at the same level, a relay failure or loss of one 125VDC power supply will not prevent HPCI or RCIC from automatically switching pump suctions from the ECST's to the Torus.

Question No. 8:

Bypassed and Inoperable Status Indication shall be provided in the Control Room for the automatic switchover channel(s) if such has been required for the RCIC system. In any case, the positions of the condensate storage tank suction valves and the suppression pool suction valves shall be indicated or be readily available in the Control Room.

Response to Question No. 8:

A bypass of automatic switchover channels is not installed. Inoperable status of 125VDC control power is indicated by an annunciator in the Control Room. Open and closed indicating lights for RCIC-MO-41 (pump suction from Torus) and RCIC-MO-18 (pump suction from ECST) are also in the Control Room.

Question No. 9:

If the sensors and/or associated sensing lines are located in an area where they can be exposed to cold weather, heating and ventilation or heat tracing shall be provided to prevent freezing of the sensors and/or associated sensing lines.

Response to Question No. 9:

The Emergency Condensate Storage Tanks and associated level sensors are located in the Control Building. Therefore, no cold weather protection is required.

Question No. 10:

Emergency procedures should be provided to alert the plant operators to take corrective action prior to overfilling the suppression pool.

Response to Question No. 10:

Abnormal Procedure 2.3.2.22 specifies corrective action to be taken on Suppression Pool (Torus) high level.