



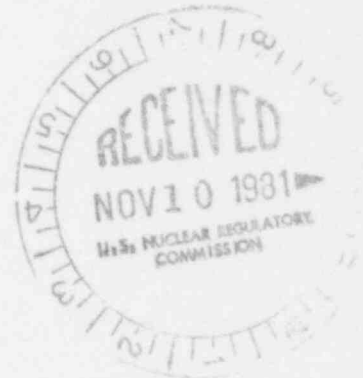
Nebraska Public Power District

COOPER NUCLEAR STATION
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LQA8100070

November 2, 1981

Mr. Thomas A. Ippolito, Chief
Operating Reactors Branch #2
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555



Subject: NUREG-0737, Item II.K.3.15
Cooper Nuclear Station
NRC Docket No. 50-298, DPR-46

Reference: 1) Letter from T. A. Ippolito to J. M. Pilant,
Dated October 14, 1981, "NUREG-0737, Item II.K.3.15"
2) Letter from J. M. Pilant to D. G. Eisenhut,
Dated June 30, 1981, "Post TMI-Requirements/NUREG-0737"

Dear Mr. Ippolito:

Your letter of October 14, 1981 (reference 1) states three criteria that the NRC used to review NPPD's June 30, 1981 submittal (reference 2) regarding Item II.K.3.15 of NUREG-0737 and concludes by stating that NPPD should provide more information regarding criteria 1 and 3. Your specific requests and NPPD's responses to those requests are as follows:

Criterion 1

Request: Provide some plant specific test data or information to demonstrate that the modification with the CNS plant specific delay setting prevents spurious isolations of the systems.

Response: In April 1974, during the CNS Startup Test Program, an isolation of the RCIC system occurred during a test run that was attributed to a pressure spike in the steam supply line when RCIC was started. In June 1974, a modification was made to both the RCIC and HPCI systems to prevent the starting pressure spikes from isolating the systems. That modification involved installing hydraulic snubbers in the sensing lines for the steam supply line break detection differential pressure sensors. Testing was performed on both systems during the Startup Test Program to verify that the installation of the snubbers did not degrade the performance of the RCIC and HPCI systems. Since the installation of the snubbers, there have been no instances of the RCIC or HPCI systems isolating due to a pressure spike when the systems are started.

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In May 1981, time delay relays were installed in both the RCIC and HPCI break detection circuitry as per the recommendations of General Electric and the BWR Owner's Group to provide additional assurance that the systems would not isolate due to the starting pressure spike. The delay time of the relays was set to 3 seconds for both RCIC and HPCI as per the Owner's Group evaluation. Tests verified that the delay time was actually ≤ 3 seconds and further determined that the delay time effected by the hydraulic snubbers is negligible compared to the 3 second delay. Consequently, it was decided that the hydraulic snubbers shall remain in place to smooth out the instrument response during normal turbine operation.

Testing to verify that the time delay relays did indeed prevent spurious isolations could not be accomplished as spurious isolations had not been a problem as discussed above. It can, however, be inferred that the time delay relays provide adequate protection against spurious isolations by making the logical assumption that if the negligible delay implemented by the hydraulic snubbers was adequate to prevent isolations, then the 3 second delay time of the relays is more than adequate to prevent spurious isolations from occurring. CNS thus concludes that the seven years of operational history serve as sufficient proof that spurious isolation of the RCIC and/or HPCI systems is not a problem and moreover, that with the installation of the time delay relays, spurious isolations will not be a problem. No further testing is planned.

Criterion 3

Request: Demonstrate that the installation of the time delay relays does not degrade the primary safety function of the system. The Owner's Group position states that the extended blowdown permitted by the time delay relays is within the design basis assumptions of the original plant safety analysis. NPPD must affirm, on a plant specific basis, that this extended blowdown outside containment is acceptable in the event of a line break. NPPD's analysis is to include consideration of the plant transient and the equipment qualification aspects for accident mitigation.

Response: In the CNS FSAR, it is assumed that a loss of AC power accompanies any loss of coolant accident (e.g. RCIC or HPCI steam line break), thus the diesels must be loaded to isolate the break. It is further assumed that 13 seconds is required before the diesels are ready for loading. The time delay relays will have timed out ~ 10 seconds before AC power is available to isolate the steam line because they are operated off backup battery DC power and are not affected by a loss of

Mr. Thomas A. Ippolito
November 2, 1981
Page 3

AC power. Thus the steam line will isolate in the same amount of time with or without the time delay relays and the LOCA analyses still bound the system(s) performance with the usage of time delay relays.

If a steam line break occurs without a loss of AC power, the time delay relays would delay isolation for 3 seconds (relay setpoint). This situation is bounded by the FSAR LOCA analyses discussed above.

In actuality, the design basis accident for CNS involving a break outside containment is a main steam line break prior to the bypass steam header in the turbine building. Since a RCIC or HPCI steam line break is still isolated in the same amount of time in the event of a loss of AC power, then either one is not more severe than the main steam line break and the results of the CNS FSAR still apply.

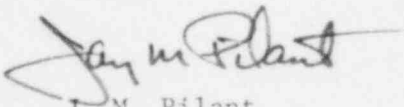
Regarding the equipment qualification aspects, the new time delay relays meet the same environmental qualifications as the non-time delay relays they replaced as they are class 1E qualified. Additionally, the relays are located outside of secondary containment in an area that would not be subject to a harsh environment in an accident situation.

Conclusion

Based upon the above, NPPD therefore concludes that the time delay relays do not degrade the primary safety function of the system(s).

If you have any questions concerning this response, please contact me.

Sincerely,



J. M. Pilant
Division Manager of Licensing
and Quality Assurance

JMP:ROP:lb