



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 107 TO FACILITY OPERATING LICENSE NO. DPR-29
AND AMENDMENT NO. 102 TO FACILITY OPERATING LICENSE NO. DPR-30
COMMONWEALTH EDISON COMPANY
AND
ICWA-ILLINOIS GAS AND ELECTRIC COMPANY
QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2
DOCKET NOS. 50-254 AND 50-265

1.0 INTRODUCTION

By letters dated November 6, 1987 and December 16, 1987, Commonwealth Edison Company (CECo, the licensee) proposed amending the Quad Cities Nuclear Power Station (QCNPS), Units 1 and 2, Technical Specifications (TS) involving High Pressure Core Injection (HPCI) and Reactor Core Isolation Cooling (RCIC) Systems Steamline High Flow Indication. These proposed amendments would revise the TS to reflect the actual plant conditions, correct typographical errors and revise the time delay relay setting for HPCI and RCIC high steam flow logic to be consistent with an engineering recommendation based on a General Electric Company analysis. TS Tables 3.2-1 and 4.2-1, and TS Bases for QCNPS HPCI and RCIC High Steamline Flow instrumentation are effected by the proposed changes.

2.0 EVALUATION

Primary containment isolation system logic is generally arranged as a dual channel logic system (i.e., "one-out-of-two taken twice"). However, several exceptions to this basic logic arrangement were made in the original QCNPS design. Examples of two such exceptions are the Group 4 (HPCI steamline isolation) and Group 5 (RCIC steamline isolation) primary containment isolation functions¹. In both cases, the initiation logic system only utilizes a "one-out-of-two taken once" type of logic for steamline high flow instrumentation. As such, only two channels of differential pressure switches for high steam line flow per logic system are necessary in order to isolate the RCIC or HPCI turbine during steam line break accident conditions. Current TS Table 3.2-1 erroneously requires four (4) channels for both the HPCI and RCIC steam line high flow instrumentation to actuate Group 4 or 5 isolation. Four channels

¹ Note Group 4 and Group 5 automatic containment isolation are important plant safety features that prevent excessive loss of reactor coolant and significant release of radioactive materials during a postulated break in the main steam supply lines to the HPCI or RCIC turbine.

are not consistent with the QCNPS logic system design and as-built configuration. This discrepancy has existed since the original TS were issued. As such, CECO's proposal to revise the number of operable or tripped HPCI and RCIC steam line high flow instrument channels from a minimum of four (4) channels to two (2) channels is acceptable. The basis for changing the minimum number of operable or tripped instruments for HPCI and RCIC steam line high flow, is because QCNPS only utilizes a "one-out-of-two taken once" logic for Group 4 and Group 5 isolation. Section 6.2.5 and 7.7.2 of the QCNPS Final Safety Analysis Report confirm that the two (2) channel instrument configuration for HPCI and RCIC steam line high flow was the intended design.

The original QCNPS HPCI and RCIC high steam flow logic time delay relays were replaced, as part of a station modification in accordance with Generic Letter 83-02, to prevent inadvertent HPCI isolation due to system pressure transients during start-up. TS were amended at that time to allow a time delay setting of $3 < t < 10$ seconds for the new relays. This value was reviewed and accepted by NRC staff in amendment numbers 88 and 83 to DPR-29 & 30 dated June 6, 1984. In the Safety Evaluation Report associated with this earlier amendment, the staff concluded that a maximum delay of up to 10 seconds was within the design basis of the HPCI and RCIC isolation system. Since that time, Commonwealth Edison's BWR Engineering Department has recommended, based on the value used in a General Electric (GE) Company analysis, that the setting should be changed to $3 < t < 9$ seconds, thereby revising the maximum allowed setting from ten (10) to nine (9) seconds. CECO's proposed amendment would change TS Tables 3.2-1 and 4.2-1 for the HPCI and RCIC high steam flow logic time delay setting from $3 < t < 10$ to $3 < t < 9$ seconds to be consistent with the Engineering Department recommendation and GE analysis. Since this change decreases the maximum allowed time delay setting to a more conservative value it is considered acceptable.

Lastly, there is a typographical error in the DPR-29 and DPR-30 TS bases involving the instrument number designations for the HPCI high steam flow and low pressure instruments. Current, Units 1 and 2, TS Section 3.2/4.2 bases identify the high steam flow instruments as 1-2389 A-D and 2-2389 A-D while the correct designations are 1-2352 & 1-2353, and 2-2352 & 2-2353, respectively. Conversely, the low pressure instruments are listed as 1-2352 & 1-2353 and 2-2352 & 2-2353 while the correct designations are 1-2389 A-D and 2-2389 A-D. More simply, instrument numbers for the high steam flow instrumentation, as found in the TS, are actually the designations for the low pressure instrumentation (while the instrument numbers for the low pressure instrumentation are actually the designations for the HPCI high steam flow instruments). Revising these instrument designations is considered to be an administrative change and, as such, is acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

These amendments involve a change to a requirement with respect to the use of a facility component located within the restricted area as defined in 10 CFR Part 20, and changes to the surveillance requirements. The staff has determined these amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite and there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that these amendments involve no significant hazards consideration and there has been no public comment on such finding.

Accordingly, these amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement nor environmental assessment need be prepared in connection with the issuance of this amendment.

4.0 CONCLUSION

The staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security nor to the health and safety of the public.

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Dated: May 10, 1988