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

December 2, 1988

MEMORANDUM FOR: Sholly Coordinator

FROM: Thierry M. Ross, Project Manager
Project Directorate III-2
Division of Reactor Projects - III,
IV, V and Special Projects

SUBJECT: REQUEST FOR PUBLICATION IN BIWEEKLY FR NOTICE - NOTICE OF CONSIDERATION OF ISSUANCE OF AMENDMENTS TO FACILITY OPERATING LICENSE AND PROPOSED NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION AND OPPORTUNITY FOR HEARING (TAC NOS. 69422 AND 69423)

Commonwealth Edison Company, Docket Nos. 50-254 and 50-265, Quad Cities Nuclear Power Station, Units 1 and 2, Rock Island County, Illinois

Date of application for amendments: September 16, 1988 as supplemented November 18, 1988

Description of amendment requests: The proposed amendment would revise Technical Specifications (TS) contained in Appendix A of the Quad Cities Station Operating Licenses (DPR-29 and DPR-30). Changes to certain TS are necessary to support the implementation of a Hydrogen Water Chemistry (HWC) program which will improve reactor water chemistry and help reduce the potential for integranular stress corrosion cracking (IGSCC).

The licensee proposes to amend TS by changing the trip setpoint for the main steamline radiation monitor (MSLRM) from a value of seven times the normal full power background (NFPB) radiation level to fifteen times NFPB. NFPB is defined, for these purposes, as the radiation level at the MSLRM associated with normal full power conditions without the use of hydrogen water chemistry. A trip setpoint value of seven times NFPB was previously chosen to provide sufficient margin for avoiding spurious trips while still providing appropriate

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protection from a control rod drop accident (CRDA). With the use of HWC the normal background levels at the MSLRM may increase by as much a factor of five due to the increase in nitrogen-16 (N-16) which is attributable to chemical changes that occur in the reactor from hydrogen addition. Therefore, in order to maintain sufficient margin from spurious actuations, the licensee proposes to raise the trip setpoint value to fifteen times the NFPB levels which exist without HWC.

This change will facilitate the HWC program developed by the licensee to improve reactor water chemistry at the Quad Cities Nuclear Power Station. The purpose of the program is to reduce the effects from IGSCC of primary pressure boundary piping. The suppression of dissolved oxygen from the addition of hydrogen to the feedwater, coupled with high purity reactor coolant, has been shown to be effective in arresting pipe cracking and pipe crack growth due to IGSCC in susceptible stainless steel piping. Addition of hydrogen decreases the oxidizing power of the reactor water and reduces its aggressiveness toward primary coolant system materials.

The HWC system has been extensively analyzed by EPRI, previously approved for use by the NRC, and is in operation at a variety of stations including Dresden 2, Fitz Patrick, and Duane Arnold.

In addition to revising the MSLRM trip setpoint, the licensee has proposed changes to correct various editorial and typographical errors on associated TS pages.

Basis for proposed no significant hazards consideration determination:

The Commission has provided standards in 10 CFR 50.92(c) for determining whether a significant hazards consideration exists. A proposed amendment to an Operating License for a facility involves no significant hazards consideration

if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated, (2) involve a significant increase in the probability of a new or different kind of accident from any accident previously evaluated, or (3) involve a significant reduction in a margin of safety.

Commonwealth Edison Company (CECo) evaluated the proposed amendment and concluded that a significant hazards consideration does not exist. Based upon the criteria of 10 CFR 50.92(c), it was determined that operation of the facility in accordance with the proposed amendment:

(1) Does not involve a significant increase in the probability or consequences of an accident previously evaluated because the consequences of the design basis CRDA, which takes credit for the operation of the MSLRMs, are not adversely affected. No other previously analyzed accidents or malfunctions, as addressed in the Updated Final Safety Analysis Report (UFSAR), are involved.

The safety function of the MSLRMs is to close the MSIVs and shut down the reactor on high radiation levels in the event of a CRDA. The closure of the MSIVs mitigates the release of radioactive fission products to the environment.

The difference between the time required for the MSLRM to reach the current trip setpoint at seven times NFPB (0.7 R/hr) versus the new setpoint of fifteen times NFPB (1.5 R/hr) is approximately 1/4 second. The time period permitted for complete closure of the MSIVs is five seconds TS 3.7/4.7.D.1). The increase in time-to-closure (due to the new setpoint), is less than 5 percent of the current time-to-closure. Consequently, even though the new setpoint is closer to the predicted main steamline radiation levels for the CRDA, the effect from the slightly longer MSLRM response time will have a

negligible impact upon the total release and resultant dose to the public. Since the calculated dose from the CRDA is only 12 mrem, even a five percent increase would be insignificant when compared to 10 CFR 100 limits. The probability of a CRDA is not affected at all since the change in the trip setpoint of the MSLRM instrumentation, used to detect the occurrence of the CRDA, does not have an effect on those events which could lead to the accident.

(2) Does not create the possibility of a new or different kind of accident from any accident previously evaluated because this modification only adjusts the trip setpoint on the MSLRM, no other station instruments or equipment are involved. The only design basis accident which takes credit for MSLRM is the CRDA, and the increased setpoint does not affect the ability of the MSLRM to perform its intended safety function. The MSLRMs operating detection range is not changed. Also, the increase MSLRM setpoint has no effect on the capability of the station to detect noble gas releases from the reactor core. Consequently, the capability to monitor for fuel failures is not affected by this change. The Steam Jet Air Ejector Off-Gas Radiation Monitor, which is more sensitive to fuel failures than the MSLRM, will still be capable of alerting the plant staff to the existence of the minor fuel failures which could be present below the proposed trip setpoint.

(3) Does not involve a significant reduction in the margin of safety because the new trip setpoint for MSLRMs does not reduce margin between the calculated dose rate from the accident and the trip setpoint. CRDA is the only accident which takes credit for the MSLRM trip setpoint. For the CRDA, calculated dose rate at the monitors is 8 R/hr. This calculated dose rate is approximately five times the proposed setpoint of 1.5 R/hr. As such, these monitors will maintain the capability to close the MSIVs, and scram the reactor, at less than

8 R/hr even if the setpoint shifts due to instrument drift. This change can offer significant benefits that enchance the margin of safety for plant operation by supporting a HWC program which substantially mitigates IGSCC of safety-related piping.

As for the associated editorial TS changes proposed by CECo, they are considered representative of example (i) in the Commissions' guidance (51 FR 7751) for examples of no significant hazards, which is defined as "a purely administrative change to TS; for example a change to achieve consistency throughout the Technical Specifications, correction of an error, or change in nomenclature."

Therefore the NRC staff proposes to determine that this amendment request does not involve significant hazards considerations based upon a preliminary review of the application, the licensee's evaluation of no significant hazards, and NRC Guidance.

Local Public Document Room location: Dixon Public Library, 221 Hennepin Avenue, Dixon, Illinois 61021.

Attorney for licensee: Michael I. Miller, Esquire; Sidley and Austin, One First National Plaza, Chicago, Illinois 60603.

NRC Project Director: Daniel R. Muller

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