



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 49 TO PROVISIONAL OPERATING LICENSE NO. DPR-19
AMENDMENT NO. 44 TO FACILITY OPERATING LICENSE NO. DPR-25
AMENDMENT NO. 58 TO FACILITY OPERATING LICENSE NO. DPR-29
AND AMENDMENT NO. 53 TO FACILITY OPERATING LICENSE NO. DPR-30

COMMONWEALTH EDISON COMPANY

AND

IOWA-ILLINOIS GAS AND ELECTRIC COMPANY

DRESDEN NUCLEAR POWER STATION, UNIT NOS. 2 AND 3

QUAD CITIES NUCLEAR POWER STATION, UNIT NOS. 1 AND 2

DOCKET NOS. 50-237, 50-249, 50-254 AND 50-265

Introduction

By letter dated 5/15/80 (Ref. 1), Commonwealth Edison Company (CECo, the licensee) proposed amendments to the Technical Specifications for Dresden Units 2 and 3 and Quad Cities Units 1 and 2. These amendments would allow the count rate on the Source Range Monitor (SRM) channels to go below three (3) counts per second (cps) when there are no more than two (2) fuel assemblies in a quadrant and they are positioned adjacent to the SRM in that quadrant.

Discussion and Evaluation

The current specifications require that a count rate of 3 cps be maintained whenever core alterations are being performed. This count rate is monitored by SRM's in the quadrant and adjacent to the quadrant being altered, or by "dunking detectors" connected into the appropriate rod block circuitry. The specifications also require that there be two (2) operable SRM's in or adjacent to any quadrant where fuel or control rods are being moved.

The first requirement assures that, whenever criticality is possible, neutron flux is being monitored so that inadvertent approach to criticality cannot be achieved. The second requirement assures that there is adequate monitoring in any quadrant in which alterations are being made.

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During normal refueling and fuel shuffling, a count rate of 3 cps is easily maintained due to the presence of other exposed fuel in the core. At times when the entire core is to be removed, however, the count rate will eventually fall to below 3 cps. When the last few assemblies are being removed, there is difficulty in demonstrating a count rate of 3 cps using either SRM's or dunker detectors.

The General Electric Co. (GE), the fuel vendor, has provided information that, for all fuel types in use in the Dresden 2/3 and Quad Cities 1/2 cores, a minimum of nine (9) uncontrolled fuel assemblies in a 3x3 array is required to achieve criticality (Refs. 2, 3, 4). Thus, when there are two (2) or less fuel assemblies in a given quadrant, criticality cannot be achieved even under the most uncontrolled conditions. The basis for requiring a minimum count rate of 3 cps whenever core alterations are being performed is to ensure that neutron production is being monitored whenever criticality is possible. This basis is satisfied by the proposed specification which would allow less than 3 cps on any SRM only when two (2) or less fuel assemblies are in that quadrant, and those assemblies are adjacent to the SRM to ensure monitoring. This would allow all SRM's to have less than 3 cps only if 8 or less assemblies are in the core (2 per quadrant) and these are adjacent to the SRM's. In such a configuration, adequate margin to criticality is assured so that the 3 cps rate need not be maintained.

It is expected that adoption of the proposed technical specification change will eliminate the need for use of "dunking detectors" to demonstrate a 3 cps count rate during removal of the last few fuel assemblies. This in itself is a desirable objective. Use of dunking detectors increases risk of dropping loose objects into the vessel and increases personnel exposure required for their use. Moreover, experience has shown them to be relatively failure-prone and otherwise unreliable.

On the basis of the foregoing discussion and evaluation, the proposed Technical Specification change is acceptable.

Environmental Considerations

We have determined that the amendments do not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendments involve an action which is insignificant from the standpoint of environmental impact, and pursuant to 10 CFR Section 51.5(d)(4) that an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of the amendments.

Conclusion

We have concluded based on the considerations discussed above, that: (1) because the amendments do not involve a significant increase in the probability or consequences of accidents previously considered and do not involve a significant decrease in a safety margin, the amendments do not involve a significant hazards consideration; (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Dated: September 8, 1980

References

1. Letter from D. L. Peoples (CECo) to Director of NRR (NRC) dated May 15, 1980.
2. Letter from H. A. Zimmerman (GE) to J. M. Dolter (CECo) dated October 6, 1977.
3. Letter from H. A. Zimmerman (GE) to J. M. Dolter (CECo) dated November 10, 1977.
4. Letter from A. DeVita (GE) to G. Grable (CECo) dated August 29, 1980.
5. Letter from R. F. Janecek (CECo) to R. Bevan (NRC) dated September 4, 1980.