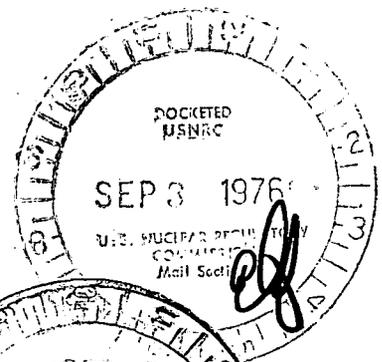




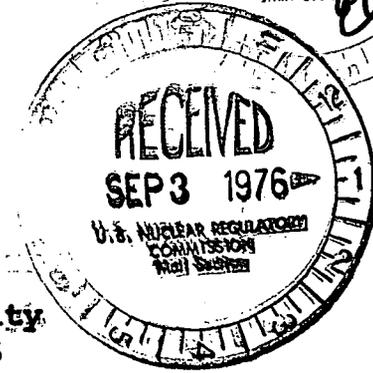
**Commonwealth Edison**  
One First National Plaza, Chicago, Illinois  
Address Reply to: Post Office Box 767  
Chicago, Illinois 60690

August 23, 1976



*efj*

Mr. Benard C. Rusche, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555



Subject: Dresden Station Unit 3  
Proposed Amendment to Facility  
Operating License No. DPR-25  
NRC Docket No. 50-249

Dear Mr. Rusche:

Pursuant to 10 CFR 50.59, Commonwealth Edison Company proposes to amend facility operating license DPR-25 and Appendix A thereto. The changes are in support of the core refueling scheduled to be completed November 19, 1976.

The proposed amendments are noted in the amended pages of Enclosure 2.

The license amendment for Dresden Unit 3 Reload 4 (Cycle 5) is the modification of paragraph 3.E "Restrictions". The modification will refer to the latest reload licensing documents for any power level restrictions. The results shown in Enclosure 1 are based on a Dresden Unit 3 plant specific analysis. The derating for scram reactivity considerations in order to maintain the margin to safety valve setpoints will be limited to 98% power at end of cycle with a coast down from 100% beginning 2000 Mwd/t before the end of cycle.

Section 2.2 page 21 has been modified to include the results of the plant specific analysis for the safety valve sizing transient. The analysis indicates approximately a 48 psi margin to the maximum pressure permitted by Section III of the ASME Code.

The steady state minimum critical power ratio (MCPR) limits have been revised as indicated on page 81D in response to the plant specific analysis showing rod withdrawal to be the most limiting transient except for the last 2000 Mwd/t of the cycle when the turbine trip without bypass valves becomes limiting for 8x8 fuel. The most

Commonwealth Edison

Mr. Benard C. Rusche

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restrictive values (1.39 for 7x7 fuel and 1.26 for 8x8 fuel) are conservatively chosen to apply as the LCO over the entire cycle. The basis for Section 3.5K is amended to reflect the plant specific transient analysis.

The proposed amendments have received on-site and off-site review.

Three (3) signed originals and 37 copies are provided for your use.

Please address any additional questions to this office.

Very truly yours,



R. L. Bolger  
Assistant Vice President

SUBSCRIBED and SWORN to  
before me this 23<sup>rd</sup> day  
of August, 1976.

Nancy M. Hollingworth  
Notary Public

Enclosure 1: 40 Copies of General Electric Boiling Water Reactor Reload 4 for Dresden Nuclear Power Station Unit 3. NEDO-21338 dated July 1976 Appendix A to NEDO-20360, Revision 1, Supplement 4 dated April 1, 1976.

Enclosure 2: 40 Copies of Page 3 of DPR-25, Pages 21, 81D, and 85B of Appendix A Technical Specifications.

Part 20, Section 30.34 of 10 CFR Part 30, Section 40.41 of 10 CFR Part 40, Sections 50.54 and 50.59 of 10 CFR Part 50, and Section 70.32 of 10 CFR Part 70; and is subject to all applicable provisions of the Act and to the rules, regulations and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified below:

A. Maximum Power Level

Commonwealth Edison is authorized to operate the facility at steady state power levels not in excess of 2527 megawatts (thermal), except that Commonwealth Edison shall not operate the facility at power levels in excess of five (5) megawatts (thermal) until satisfactory completion of modifications and

final testing of the station output transformer, the auto-depressurization interlock, and the feedwater system, as described in Commonwealth Edison's telegrams dated February 26, 1971, have been verified in writing by the Commission.

3. Technical Specifications

The Technical Specifications contained in Appendix A, as revised, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications, as revised by issued

C. Reports

Commonwealth Edison shall make certain reports in accordance with the requirements of the Technical Specifications.

D. Records

Commonwealth Edison shall keep facility operating records in accordance with the requirements of the Technical Specifications.

E. Restrictions

Reactor power level shall be limited to maintain pressure margin to the safety valve setpoints during the worst case pressurization transient. The magnitude of the power limitation, if any, and the point in the cycle at which it shall be applied are specified in the reload licensing submittal for Dresden Unit 3 (NEDO-21338). Plant operation shall be limited to the operating plan described therein.

Bases:

2.2 In compliance with Section III of the ASME Code, the safety valves must be set to open at no higher than 103% of design pressure, and they must limit the reactor pressure to no more than 110% of design pressure. Both the high pressure scram and safety valve actuation are required to prevent overpressurizing the reactor pressure vessel and thus exceeding the pressure safety limit. The pressure scram is actually a backup protection to the high flux scram which was analyzed in Section 4.4.3 of the SAR, re-examined in the Dresden 3 Second Reload License Submittal, September 14, 1973, and reanalyzed in "Dresden Station Special Report No. 29 Supplement B". If the high flux scram were to fail during a maximum pressure transient (also assuming

failure of the turbine stop valve closure scram, failure of the bypass system to actuate and failure of the relief valves to open) the pressure would rise rapidly due to void reduction in the core. A high pressure scram would occur at 1060 psig. The pressure at the bottom of the vessel is about 1232 psig when the first safety valve opens and about 1272 psig when the last valve opens. Both values are clearly within the code requirements. Vessel dome pressure reaches less than 1298 psig with the peak at the bottom of the vessel less than 1327 psig. Therefore, the pressure scram and safety valve actuation provide adequate margin below the peak allowable vessel pressure of 1375 psig.

### 3.5 LIMITING CONDITION FOR OPERATION

#### K. Minimum Critical Power Ratio (MCPR)

During steady state operation MCPR shall be greater than or equal to -

##### Unit 3

1.39 (7 x 7 fuel)

1.26 (8 x 8 fuel)

at rated power and flow. For core flows other than rated, these nominal values of MCPR shall be increased by a factor of  $K_f$ , where  $K_f$  is as shown in Figure 3.5-2.

If at any time during steady state power operation it is determined that the limiting value for MCPR is being exceeded, action shall be taken immediately to restore operation within the prescribed limits.

### 4.5 SURVEILLANCE REQUIREMENTS

#### K. Minimum Critical Power Ratio (MCPR)

The MCPR shall be determined daily during steady state power operation above 25% of rated thermal power.

### 3.5 Limiting Condition for Operation Bases (Cont'd)

heat generation rate even if fuel pellet densification is postulated. The power spike penalty specified is based on that presented in Ref. (2) and assumes a linearly increasing variation in axial gaps between core bottom and top, and assumes with 95% confidence, that no more than one fuel rod exceeds the design LHGR due to power spiking. An irradiation growth factor of 0.25% was used as the basis for determining  $\Delta P/P$  in accordance with Refs. (3) and (4).

#### K. Minimum Critical Power Ratio (MCPR)

The steady state values for MCPR specified in this Specification were selected to provide margin to accommodate transients and uncertainties in monitoring the core operating state as well as uncertainties in the critical power correlation itself. These values also assure that operation will be such that the initial condition assumed for the LOCA analysis, a MCPR of 1.18, is satisfied. For any of the special set of transients or disturbance caused by single operator error or single equipment malfunction, it is required that design analyses initialized at this steady state operating limit yield a MCPR of not less than that specified in Specification 1.1.A at any time during the transient assuming instrument trip settings given in Specification 2.1. For analysis of the thermal consequences of these transients, the limiting value of MCPR stated in this specification is conservatively assumed to exist prior to the initiation of the transients. The results apply with increased conservatism while operating with MCPR's greater than specified.

The most limiting transients with respect to MCPR are generally:

- a) Rod withdrawal error
- b) Turbine trip without bypass
- c) Loss of feedwater heater

Several factors influence which of these transients results in the largest reduction in critical power ratio such as the specific fuel loading, exposure, and fuel type. The current cycles reload licensing submittal specifies the limiting transient for a given exposure increment for each fuel type. The values specified as the Limiting Condition of Operation are conservatively chosen as the most restrictive over the entire cycle for each fuel type.

For core flow rates less than rated, the steady state MCPR is increased by the formula given in the Specification. This assures that the MCPR will be maintained greater than that specified in Specification 1.1.A even in the event that the motor-generator set speed controller causes the scoop tube positioner for the fluid coupler to move to the maximum speed position.

- (2) Fuel Densification Effects on General on General Electric Boiling Water Reactor Fuel," Section 3.2.1, Supplement 6, Aug. 1973.
- (3) USAEC Report, "Supplement 1 to the Technical Report on Densification of General Electric Reactor Fuels," Dec. 14, 1973.
- (4) GE Planning and Development Memorandum #45, "Length Growth of BWR Fuel Elements", R. A. Proebsthe, October 1, 1973 (Proprietary).