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Docket No. 50-237

JUL 6 1977

Commonwealth Edison Company  
ATTN: Mr. R. L. Bolger  
Assistant Vice President  
Post Office Box 767  
Chicago, Illinois 60690

Gentlemen:

The Commission has issued the enclosed Amendment No. 3/ to Facility Operating License No. DPR-19 for Unit No. 2 of the Dresden Power Station. This amendment is in response to your request dated June 6, 1977.

This amendment authorizes operation of the reactor beyond the previously analyzed end-of-cycle scram reactivity conditions and is based upon new analyses.

Copies of the Safety Evaluation and the Notice of Issuance also are enclosed.

Sincerely,

Original signed by

*Don K. Davis*

Don K. Davis, Acting Chief  
Operating Reactors Branch #2  
Division of Operating Reactors

Enclosures:

- 1. Amendment No. 3/ to License No. DPR-19
- 2. Safety Evaluation
- 3. Notice

cc w/enclosures:  
See next page

*Subject to addition of sentence addressing effect of higher burnup on fuel cladding and on development of fission products - (see page 2 of SE)*

*Christie B*

|           |            |             |           |            |  |  |
|-----------|------------|-------------|-----------|------------|--|--|
| OFFICE →  | DOR:ORB #2 | DOR:ORB #2  | OELD      | DOR:ORB #2 |  |  |
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| DATE →    | 7 16 1977  | 7 15 1977   | 7 16 1977 | 7 16 1977  |  |  |

July 6, 1977

cc w/enclosures:

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Mr. William Waters  
Chairman, Board of Supervisors  
of Grundy County  
Grundy County Courthouse  
Morris, Illinois 60450

Chief, Energy Systems  
Analyses Branch (AW-459)  
Office of Radiation Programs  
U. S. Environmental Protection Agency  
Room 645, East Tower  
401 M Street, S. W.  
Washington, D. C. 20460

U. S. Environmental Protection Agency  
Federal Activities Branch  
Region V Office  
ATTN: EIS COORDINATOR  
230 South Dearborn Street  
Chicago, Illinois 60604

cc w/enclosures and cy of CECO's  
filing dtd. 6/6/77:  
Department of Public Health  
ATTN: Chief, Division of  
Nuclear Safety  
535 West Jefferson  
Springfield, Illinois 62761



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

COMMONWEALTH EDISON COMPANY

DOCKET NO. 50-237

DRESDEN UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 31  
License No. DPR-19

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by the Commonwealth Edison Company (the licensee) dated June 6, 1977, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, Facility Operating License No. DPR-19, as amended, is hereby further amended by revising in its entirety Paragraph 3.F thereof to read as follows:

F. Restrictions

At the point in the operating cycle at which the reactivity reduction rate during a scram is less than that of Curve B in Figure 1 of "Supplement B to Dresden Station Special Report 29," dated March 29, 1974, coastdown to 90% power with a fixed rod pattern shall commence. Rod withdrawal following coastdown may resume in order to maintain 90% power until the all-rods-out condition has been reached. Coastdown below 90% power may then continue. Operation at 90% power level shall not exceed the power vs. flow conditions defined by the nominal 90% flow control line. The flow control line during the coastdown periods shall be limited to that which is consistent with the steady state power level achievable at full flow. Operation of the reactor is not permitted after coastdown to 40% power pending further analyses.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Don K. Davis, Acting Chief  
Operating Reactors Branch #2  
Division of Operating Reactors

Date of Issuance: July 6, 1977



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
SUPPORTING AMENDMENT NO. 31 TO FACILITY OPERATING LICENSE NO. DPR-19

COMMONWEALTH EDISON COMPANY

DRESDEN STATION UNIT NO. 2

DOCKET NO. 50-237

INTRODUCTION

By application dated June 6, 1977, Commonwealth Edison Company (CECo) requested authorization, with appropriate restrictions, for reactor power operation beyond the previously analyzed end-of-cycle scram reactivity conditions. Amendment No. 21 to Facility License No. DPR-19 issued May 23, 1976, did not authorize operation beyond that point in the fuel cycle where reactivity reduction rates during scram were less than that of the end-of-cycle curve on Figure 1.1 of the CECo letter (J. S. Abel to D. L. Ziemann) dated February 27, 1975.

Previously approved license amendments to Dresden 2 did not authorize operation beyond burnup where 70% of rated thermal power was achieved with all-rods-out and 100% of reactor coolant flow. The June 6, 1977 submittal proposed coastdown operation to 40% rated power with all-rods-out and 100% of reactor coolant flow. The safety issue addressed is that associated with the reduction in scram reactivity with increased burnup.

DISCUSSION

Operation in the coastdown mode to 40% power was analyzed to establish the effect of normal operation anticipated transients, and accidents. The turbine trip without bypass was determined to be the most limiting operational transient. The turbine trip without bypass was analyzed for four specific cases. (1) These four cases cover the reduced power operation as shown in Figure 1 (1). Each analysis was done at a specific power and cycle increment exposure point: 1) 90% power at 4803 Mwd/t, 2) 70%

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(1) R. L. Bolger, Commonwealth Edison Company, letter to E. G. Case, Deputy Director, Office of Nuclear Reactor Regulation, USNRC, Subject: Dresden Station Unit No. 2 Proposed Amendment to Facility Operating License No. DPR-19 to Permit Power Coastdown from 70% Power to 40% Power, NRC Docket No. 50-237, dated June 6, 1977.

power at 5776 MWd/t, 3) 55% power at 6624 MWd/t, and 4) 40% power at 7481 MWd/t. The analysis covering the 100% power operation and the first coastdown have been previously reviewed and approved. The primary cycle-dependent input parameters for the transient analyses are the scram reactivity curves, the dynamic void coefficient of reactivity and the Doppler coefficient. (1) These parameters have been calculated for the analysis conditions. The pressure margin is larger for these four cases than the required margin. This results in a conservative operating basis. The current Technical Specifications are based on values of  $\Delta$ CPR's for 100% power of 0.23 and 0.29 for 7 x 7 and 8 x 8 fuel, respectively. Since these are maximum  $\Delta$ CPR's, any values calculated to be lower would be conservative. The  $\Delta$ CPR values for the four cases have been evaluated and found to be less than the current operating values. Thus, operation with the maximum  $\Delta$ CPR's for the proposed coastdown is conservative. The maximum burnup to be achieved by any fuel assembly during the coastdown shall be less than the fuel design burnup criteria. This assures that fuel integrity limits and the consequences of previously postulated accidents are not exceeded. Based on the small change to cycle-dependent parameters and on a sensitivity study for the effect of scram reactivity variations, (2) the proposed operation will not reduce the safety margins associated with anticipated transients, accidents, or normal operations. Specifically, operation in the coastdown mode will have the same or increased thermal and pressure safety margin as that for the previously reviewed and approved operations.

The CECO analysis for proposed coastdown operation is based on operation at 100% rated flow at powers on or below the curve given in Figure 1 of their submittal. (1) Provided that reactor operation does not exceed these boundary conditions, the results of the analysis and sensitivity study are conservative. The NRC staff agrees with CECO's proposed license restriction which implicitly incorporates these boundary conditions.

#### ENVIRONMENTAL CONSIDERATION

We have determined that this amendment does 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 amendment involves an action which is insignificant from the standpoint of environmental impact and pursuant to 10 CFR §51.5(d)(4) that an environmental impact statement

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(2) Supplement B to Dresden Station Special Report No. 29, March 29, 1974.

or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of the amendment.

### CONCLUSIONS

We have concluded that the proposed amendment to the Dresden Unit No. 2 license for operation beyond the previously approved end-of-cycle is acceptable. The review considered the reduced end-of-cycle scram reactivity and found that the proposed operational mode will maintain the previously approved safety margins. Therefore, the proposed coastdown operation is acceptable.

We have also concluded, based on the considerations discussed above, that: (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the amendment does 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 this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Date: July 6, 1977

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-237

COMMONWEALTH EDISON COMPANY

NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY  
OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 31 to Facility Operating License No. DPR-19 issued to Commonwealth Edison Company (the licensee) for operation of Dresden Station Unit No. 2 (the facility) located in Grundy County, Illinois. The amendment is effective as of its date of issuance.

The amendment authorized operation of the reactor beyond the previously analyzed end-of-cycle scram reactivity conditions in accordance with Commonwealth Edison's request dated June 6, 1977.

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment. Prior public notice of this amendment was not required since the amendment does not involve a significant hazards consideration.

The Commission has determined that the issuance of this amendment will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with issuance of this amendment.

For further details with respect to this action, see (1) the application for amendment dated June 6, 1977, (2) Amendment No. 31 to License No. DPR-19 and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C., and at the Morris Public Library, 604 Liberty Street, Morris, Illinois 60451. A single copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Operating Reactors.

FOR THE NUCLEAR REGULATORY COMMISSION



Don K. Davis, Acting Chief  
Operating Reactors Branch #2  
Division of Operating Reactors

Dated at Bethesda, Maryland, this sixth day of July, 1977.