

Docket No. 50-265

JUN 25 1976

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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. 2 to Facility License No. DPR-30 for Unit No. 2 of the Quad Cities Nuclear Power Station. This amendment is in response to your request dated June 11, 1976.

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 are also enclosed.

Sincerely,

Signature
 Signed by
 in Illinois

Dennis L. Ziemann, Chief
 Operating Reactors Branch #2
 Division of Operating Reactors

Enclosures:

1. Amendment No. 2 to License DPR-30
2. Safety Evaluation
3. Notice of Issuance

OFFICE	DOR:ORB #2	DOR:ORB #2	OELD	DOR:ORB #2	DOR:RSB
SURNAME	PWO' Connor:ah	RMDiggs	<i>KARMEN</i>	DLZiemann	RBaer
DATE	6/21/76	6/21/76	6/23/76	6/23/76	6/23/76

JUN 25 1976

cc w/enclosures:

Mr. Charles Whitmore
President and Chairman
Iowa-Illinois Gas and
Electric Company
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Counselors at Law
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Roisman, Kessler and Cashdan
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Washington, D. C. 20036

Moline Public Library
504 - 17th Street
Moline, Illinois 61265

Mr. Robert W. Watts, Chairman
Rock Island County Board
of Supervisors
Rock Island County Court House
Rock Island, Illinois 61201

cc w/enclosures and cy of CECO
filing dtd. 6/11/76:
Mr. Leroy Stratton
Bureau of Radiological Health
Illinois Department of Public Health
Springfield, Illinois ,62706

COMMONWEALTH EDISON COMPANY

AND

IOWA-ILLINOIS GAS AND ELECTRIC COMPANY

DOCKET NO. 50-265

QUAD CITIES NUCLEAR POWER STATION UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. ²⁴
License No. DPR-30

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Commonwealth Edison Company (the licensee) dated June 11, 1976, 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.

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- 2. Accordingly, Facility Operating License No. DPR-30, as amended, is hereby further amended by revising in its entirety paragraph 3.C thereof to read as follows:

"3.C Restriction

Beyond the point in the fuel cycle at which the reactivity reduction rate during a scram is less than the end-of-cycle "C" curve on Figure 1-1 of the Commonwealth Edison letter (J. S. Abel to D. L. Ziemann) dated February 27, 1975, the reactor power level shall be limited to the power profile shown on Figure 1 of the "Quad Cities Station Unit No. 2 Proposed Amendment to Facility License No. DPR-30" dated June 11, 1976. The coastdown from 100% power to 90% power and the coastdown from 90% power shall be accomplished at 100% core flow. Operation at 90% power level shall not exceed the power vs. flow conditions defined by the nominal 90% flow control line. Operation of the reactor is not permitted after the coastdown to 70% has been completed."

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

FOR THE NUCLEAR REGULATORY COMMISSION

Approved by
 Board of Commissioners

[Handwritten signature]

Dennis L. Ziemann, Chief
 Operating Reactors Branch #2
 Division of Operating Reactors

Date of Issuance: JUN 25 1976

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 14 TO FACILITY OPERATING LICENSE NO. DPR-30

COMMONWEALTH EDISON COMPANY

AND

IOWA-ILLINOIS GAS AND ELECTRIC COMPANY

QUAD CITIES STATION UNIT NO. 2

DOCKET NO. 50-265

INTRODUCTION

By application dated June 11, 1976, 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. 14 to Facility License No. DPR-30 issued July 3, 1975, 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 CE letter (J. S. Abel to D. L. Ziemann) dated February 27, 1975.

DISCUSSION

As discussed in our previous Safety Evaluation, supporting Amendment No. 14, issued July 3, 1975, Quad Cities Unit No. 2 is currently authorized to operate beyond the scram reactivity reduction rate described in the generic B curve^{1/} with the power and flow conditions specified by the "Nominal Expected 90% Flow Control Line" on Figure 2.1-3 of the CE letter (J. S. Abel to Bernard C. Rusche) dated June 24, 1975.

Operation in this manner was analyzed to establish the effect of anticipated transients and accidents and normal operations. The turbine trip with failure of the bypass valves was determined to be the most limiting transient. This analysis assumed operation with the end-of-cycle "C" scram reactivity curve described in Figure 1.1 of CECo's February 27, 1975 letter (J. S. Abel to D. L. Ziemann). The analysis showed that operation

1/ "Dresden Station Special Report 29, Supplement B" dated March 29, 1974.

of Quad Cities Unit No. 2 with the actual end-of-cycle scram reactivity reduction rate will maintain the safety margins previously determined for anticipated transients with scram.

CECo has provided in its June 11, 1976 submittal a reanalysis of the limiting transient, a turbine trip without bypass, at burnup conditions beyond the point in the fuel cycle at which the reactivity reduction rate during a scram (scram reactivity) is less than that of the "End-of-Cycle" curve previously provided by CECo on February 27, 1975^{2/}. This new analysis evaluated the limiting transient at reduced power levels of 90%, 80%, and 70% at burnups of 12,593 MWd/t, 13,041 MWd/t, and 13,514 MWd/t, respectively. The control rods are at their fully withdrawn position for these analyses, and new scram reactivity curves^{3/} have been calculated for the three power and burnup conditions analyses. Other primary cycle dependent input parameters such as the doppler and void coefficients also have been recomputed for the burnup and reduced power levels used in the new analysis.

The CECo analysis for operation with the new scram reactivity reduction rates^{3/} is based upon operation at 100% of rated flow during coast down and operation on or below the nominal 90% flow control line during the 90% power operation between coastdown periods. Provided that reactor operation does not exceed these boundary conditions, the results of the most severe transient, the turbine trip with failure of bypass, will be less severe than the previously analyzed and approved operating condition. The NRC staff has modified Commonwealth Edison's proposed license restriction to incorporate these boundary conditions. This change has been discussed with Commonwealth Edison's representatives and has been agreed to by them.

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

^{2/} Letter J. S. Abel CECo to D. L. Ziemann NRC, February 27, 1975.

^{3/} Figure 2, Quad Cities 2 EOC; All Rods Out Scram Reactivity at Rated Conditions submitted by CECo letter dtd. June 11, 1976.

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

CONCLUSIONS

We have concluded that the proposed amendment to license for Quad Cities Unit No. 2 for operation beyond the end-of-cycle scram reactivity reduction rate curve "C" will maintain the safety margins previously determined for anticipated transients with scram.

We have concluded, based on the considerations discussed above, that: (1) because the change 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 change 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: JUN 25 1976

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-265

COMMONWEALTH EDISON COMPANY AND

IOWA-ILLINOIS GAS AND ELECTRIC COMPANY

NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY
OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 34 to Facility Operating License No. DPR-30, issued to Commonwealth Edison Company (acting for itself and on behalf of the Iowa-Illinois Gas and Electric Company) (the licensee), for operation of the Quad Cities Unit No. 2 (the facility) located in Rock Island County, Illinois. The amendment is effective as of its date of issuance.

The amendment authorizes operation of the reactor beyond the previously analyzed end-of-cycle scram reactivity conditions in accordance with Commonwealth Edison's request dated June 11, 1976.

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.

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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 statement, negative declaration or 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 11, 1976, (2) Amendment No. 2 to License No. DPR-30, 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 Moline Public Library, 504 - 17th Street, Moline, Illinois 60265.

A 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.

Dated at Bethesda, Maryland, this ^{25th} day of June, 1976

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by
M. Grodzinski

Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Operating Reactors

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SURNAME ➤						
DATE ➤						

2. Accordingly, Facility Operating License No. DPR-30, as amended, is hereby further amended by revising in its entirety paragraph 3.C thereof to read as follows:

"3.C. Restriction

Beyond the point in the fuel cycle at which the reactivity reduction rate during a scram is less than the end-of-cycle "C" curve on Figure 1-1 of the Commonwealth Edison letter (J.S. Abel to D. L. Ziemann) dated February 27, 1975, the reactor power level shall be limited to the power profile shown on Figure 1 of the "Quad Cities Station Unit No. 2 Proposed Amendment to Facility License No. DPR-30" dated June 11, 1976. The coastdown from 100% power to 90% power and the coastdown from 90% power shall be accomplished at 100% core flow. Operation at 90% power level shall not exceed the power vs. flow conditions defined by the nominal 90% flow control line."

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

FOR THE NUCLEAR REGULATORY COMMISSION

Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Operating Reactors

Date of Issuance:

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of Quad Cities Unit No. 2 with the actual end-of-cycle scram reactivity reduction rate will maintain the safety margins previously determined for anticipated transients with scram.

CECo has provided in its June 11, 1976 submittal a reanalysis of the limiting transient, a turbine trip without bypass, at burnup conditions beyond the point in the fuel cycle at which the reactivity reduction rate during a scram (scram reactivity) is less than that of the "End-of-Cycle" curve previously provided by CECo on February 27, 1975^{2/}. This new analysis evaluated the limiting transient at reduced power levels of 90%, 80%, and 70% at burnups of 12,593 MWd/t, 13,041 MWd/t, and 13,514 MWd/t, respectively. The control rods are at their fully withdrawn position for these analyses, and new scram reactivity curves^{3/} have been calculated for the three power and burnup conditions analyses. All input parameters other than the scram reactivity curves and the reduced power levels are identical to the previously analyzed and approved operating conditions which used the "C" scram reactivity curve calculated for lower fuel burnup conditions at 90% power.

The CECo analysis for operation with the new scram reactivity reduction rates^{3/} is based upon operation at 100% of rated flow during coast down and operation on or below the nominal 90% flow control line during the 90% power operation between coastdown periods. Provided that reactor operation does not exceed these boundary conditions, the results of the most severe transient, the turbine trip with failure of bypass, will be less severe than the previously analyzed and approved operating condition. The NRC staff has modified Commonwealth Edison's proposed license restriction to incorporate these boundary conditions. This change has been discussed with Commonwealth Edison's representatives and has been agreed to by them.

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^{2/} Letter J. S. Abel CECo to D. L. Ziemann NRC, February 27, 1975.

^{3/} Figure 2, Quad Cities 2 EOC; All Rods Out Scram Reactivity at Rated Conditions submitted by CECo letter dtd. June 11, 1976.