

COMMONWEALTH EDISON COMPANYBYRON STATION, UNIT NO. 1DOCKET NO. STN 50-454NOTICE OF ISSUANCE OF FACILITY OPERATING LICENSE

Notice is hereby given that the U. S. Nuclear Regulatory Commission (the Commission or NRC), has issued Facility Operating License No. NPF-23 to Commonwealth Edison Company (the licensee) which authorizes operation of the Byron Station, Unit No. 1 (the facility), at reactor core power levels not in excess of 3411 megawatts thermal in accordance with the provisions of the License, the Technical Specifications and the Environmental Protection Plan with a condition currently limiting operation to five percent of full power (170 megawatts thermal). Authorization to operate beyond five percent of full power will require specific Commission approval.

Byron Station, Unit No. 1 is a pressurized water reactor located in north central Illinois, 2½ miles east of the Rock River, 3 miles south-south-west of the town of Byron, and 17 miles southwest of Rockford, Illinois. The station is within Rockvale Township, Ogle County, Illinois. The license is effective as of the date of issuance.

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The application for the license complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations. The Commission has made appropriate findings as required by the Act and the Commission's regulations in 10 CFR Chapter I which are set forth in the License. Prior public notice of the overall action involving the proposed issuance of an operating license was published in the Federal Register on December 15, 1978 (43 FR 58659).

The Commission has determined that the issuance of this license will not result in any environmental impacts other than those evaluated in the Final Environmental Statement and the Assessment of the Effect of License Duration on Matters Discussed in the Final Environmental Statement for the Byron Station, Units 1 and 2 (dated April 1982) since the activity authorized by the license is encompassed by the overall action evaluated in the Final Environmental Statement.

For further details with respect to this action, see (1) Facility Operating License No. NPF-23, with Technical Specifications and the Environmental Protection Plan; (2) the report of the Advisory Committee on Reactor Safeguards, dated March 9, 1982; (3) the Commission's Safety Evaluation Report, dated February 1982 (NUREG-0876), and Supplements 1 through 5; (4) the Final Safety Analysis Report and Amendments thereto; (5) the Environmental Report and supplements thereto; (6) and the Final Environmental Statement, dated April 1982.

These items are available for inspection at the Commission's Public Document Room located at 1717 H Street, N. W., Washington, D. C. 20555 and at the Rockford Public Library, Rockford, Illinois. A copy of Facility Operating License NPF-23 may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Licensing. Copies of the Safety Evaluation Report and Supplements 1 through 5 (NUREG-0876) and the Final Environmental Statement (NUREG-0848) may be purchased at current rates from the National Technical Information Service, Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, and through the NRC GPO sales program by writing to the U. S. Nuclear Regulatory Commission, Attention: Sales Manager, Washington, D. C. 20555. GPO deposit account holders may call 301-492-9530.

Dated at Bethesda, Maryland this 31<sup>st</sup> day of October, 1984.

FOR THE NUCLEAR REGULATORY COMMISSION

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B. J. Youngblood, Chief  
Licensing Branch No. 1  
Division of Licensing

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

Docket No. 50-454

AMENDMENT TO INDEMNITY AGREEMENT NO. B-97  
AMENDMENT NO. 1

Effective \_\_\_\_\_, Indemnity Agreement No. B-97, between Commonwealth Edison Company and the Nuclear Regulatory Commission, dated May 6, 1983, is hereby amended as follows:

Item 2a. of the Attachment to the indemnity agreement is deleted in its entirety and the following substituted therefor:

Item 2 - Amount of financial protection

a. \$1,000,000 (From 12:01 a.m., May 6, 1983, to  
12 midnight October 30, 1984  
inclusive)

\$160,000,000\* (From 12:01 a.m., October 31, 1984)

Item 3 of the Attachment to the indemnity agreement is deleted in its entirety and the following substituted therefor:

Item 3 - License number or numbers

SNM-1917 (From 12:01 a.m., May 6, 1983, to  
12 midnight October 30, 1984  
inclusive)

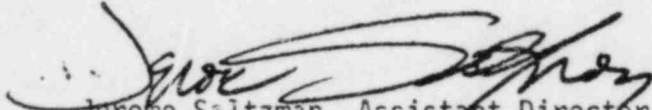
NPF-23 (From 12:01 a.m. October 31, 1984)

\* and, as of August 1, 1977, the amount available as secondary financial protection.

Item 5 of the Attachment to the indemnity agreement is amended by adding the following:

Nuclear Energy Liability Policy (Facility Form) No. MF-114  
issued by Mutual Atomic Energy Liability Underwriters.

FOR THE UNITED STATES NUCLEAR REGULATORY COMMISSION

  
Jerome Saitzman, Assistant Director  
State and Licensee Relations  
Office of State Programs

Accepted \_\_\_\_\_, 1984

By \_\_\_\_\_  
COMMONWEALTH EDISON COMPANY

ASSESSMENT OF THE EFFECT OF LICENSE DURATION ON MATTERS DISCUSSED  
IN THE FINAL ENVIRONMENTAL STATEMENT FOR THE BYRON STATION,  
UNITS 1 AND 2 (DATED APRIL 1982)

INTRODUCTION

The Final Environmental Statement (FES) for the operation of the Byron Station, Unit Nos. 1 and 2 was published in April 1982. At that time it was staff practice to issue operating licenses for a period of 40 years from the date of the construction permit. For Byron, the CP was issued in December 1975, thus, approximately 30 years of operating life would be available.

By letter dated December 28, 1983 Commonwealth Edison Company requested that the operating license for Byron Station, Units 1 and 2 and Braidwood Station, Units 1 and 2 have a duration of 40 years from the date of issuance.

DISCUSSION

The staff has reviewed the Byron FES to determine which aspects considered in the FES are affected by the duration of the operating license. In general, the FES assesses various impacts associated with operation of the facility in terms of annual impacts and balances these against the anticipated annual energy production benefits. Thus, the overall assessment and conclusions would not be dependent on specific operating life. There are, however, three areas in which a specific operating life was assumed:

1. Radiological assessments are based on a 15-year plant midlife.
2. Uranium fuel cycle impacts are based on one initial core load and annual refuelings.
3. Uranium availability is evaluated through 30 years of operation.

These were assessed to determine whether the use of a 40-year operating period rather than a 30-year operating period would significantly affect our assessment concerning these areas.

EVALUATION:

The staff's appraisal of the significance of the use of 40 years of operation rather than 30 as it affects these three areas is presented in the following discussions:

1. Radiological Assessments - The NRC staff calculates dose commitments to the human population residing around nuclear power reactors to assess the impact on people from radioactive material released from these reactors. The annual dose commitment is calculated to be the dose that would be received over a 50-year period following the intake of radioactivity for 1 year under the conditions that would exist 15 years after the plant began operation.

The 15 year period is chosen as representing the midpoint of plant operation and factors into the dose models by allowing for buildup of long life radionuclides in the soil. It affects the estimated doses only for radionuclides ingested by humans that have half-lives greater than a few years. For a plant licensed for 40 years, increasing the buildup period from 15 to 20 years would increase the dose from long term life radionuclides via the ingestion pathways by 33% at most. It would have much less effect on dose from shorter life radionuclides. Table C.5 and C.7 of Appendix C to the FES indicate that the estimated doses via the ingestion pathways are only a fraction of the regulatory design objectives. For example, the ingestion dose to the thyroid is 0.61 mrem/yr compared to an Appendix I design objective of 15 mrem/yr. Thus, even with an increase as much as 33% in these pathways, the dose would remain within the Appendix I guidelines and would still not be significant.

2. Uranium Fuel Cycle Impacts - The impacts of the uranium fuel cycle are based on 30 years of operation of a model LWR. The fuel requirements for the model LWR were assumed to be one initial core load and 29 annual refuelings (approximately 1/3 core). The annual fuel requirement for the model LWR averaged out over a 40-year operating life (1 initial core and 39 refuelings of approximately 1/3 core) would be reduced slightly as compared to the annual fuel requirement averaged for a 30-year operating life.

The net result would be an approximately 1.5% reduction in the annual fuel requirement for the model LWR. This small reduction in fuel requirements would not lead to significant changes in the impacts of the uranium fuel cycle. The staff does not believe that there would be any changes to Byron FES Table 5.4 (S-3) that would be necessary in order to consider 40 years of operation. If anything, the values in Table 5.4 become more conservative when a 40-year period of operation is considered.

3. Uranium Resources - In Section 10.3.3.2 of the Byron CP stage FES, the uranium resource commitment was estimated at 59 metric tons of U-235. Since then, the NRC staff has generally considered uranium availability based on the cumulative lifetime (assumed to be 30 years) uranium requirements for 236 reactor cases. This is discussed in Section 9.3.2 of the La Salle OL stage FES. As stated on Page 9-4 of the La Salle FES, the lifetime uranium commitment for these cases would be less than half of the currently estimated domestic resources. A 33% increase in operating life (to 40 years) of the 236 reactors would still be within the projected uranium resources. Cancellation of many of the 236 reactors since the La Salle FES was issued will result in an off-setting reduction in demand. Furthermore, the increase in operating life assumption to 40-years will reduce the need for replacement generating capacity, including nuclear, at the end of 30 years.

#### CONCLUSION

The staff has reviewed the Byron FES and determined that only three of the areas related to its NEPA analysis discussed in the statement were tied directly to a 30-year operating period. We have concluded, based on the reasons discussed in the sections above, that the impacts associated with a 40-year operating license duration are not significantly different from those associated with a 30-year full power operating license duration and are not significantly different from those assessed in the Byron FES.