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December 28, 1983

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Byron Generating Station Units 1 and 2
Braidwood Generating Station Units 1 and 2
Forty Year Operating License
NRC Docket Nos. 50-454, 50-455, 50-456, and 50-457

Reference (a): September 23, 1981, letter from L. O. DelGeorge to H. R. Denton.

Dear Mr. Denton:

Early next year Commonwealth Edison Company expects to receive an operating license for Byron Unit 1, the first of four identical reactors being built at the Byron and Braidwood generating stations. The purpose of this letter is to request that the Nuclear Regulatory Commission issue each of these operating licenses for a full term of 40 years, running from the date of issuance of the license. The requested 40 year term is consistent with the safety reviews conducted according to the Atomic Energy Act, the environmental reviews conducted according to the National Environmental Protection Act, and the NRC regulations.

Until recently the NRC's practice has been to issue an operating license for a term of 40 years from the date of issuance of the NRC construction permit, rather than from the date of issuance of the operating license itself. As documented in reference (a), this practice has resulted in authorized operating periods substantially shorter than the 40 year design objective. Because the time required for construction of nuclear power plants has steadily increased over the past few years, this practice of backdating has resulted in a steady erosion of authorized operating periods for new units. This reduction in the lifetime of operating licenses is apparently unintentional and arbitrary. It is not required for the safety of atomic power plants, nor is it in keeping with the intent of the Atomic Energy Act. Recently the NRC has begun issuing 40-year licenses.

All four of the Byron/Braidwood construction permits were issued on December 31, 1975. Following the practice of backdating to construction permit issuance would result in authorized operating periods ranging from 29 to 32 years, an overall reduction of 23% in the authorized

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operating life of these reactors. This reduction is not compelled by the NRC Staff's thorough safety and environmental reviews of these units. We are unaware of any safety or environmental consideration which would require a limitation on the operating license effectiveness to a period of less than forty years.

STATUTORY AND REGULATORY CONSIDERATIONS

Section 103(c) of the Atomic Energy Act of 1954 authorizes the Nuclear Regulatory Commission to issue commercial reactor operating licenses for a "specified period...but not exceeding 40 years." As recounted in reference (a), it is clear that Congress intended to provide 40 year operating licenses so that public utility companies would not be discouraged from undertaking the costly construction of nuclear power plants. The fact that new plants are more expensive and take longer to build and license than was envisioned in 1954 increases the justification for allowing a utility and the public it serves the full economic benefit of the 40 year license term originally intended by Congress.

The NRC regulations which implement Section 103(c) carry forth the intent of the statute by prescribing procedures which ensure a full term of 40 years to an applicant who meets the necessary safety and environmental requirements of the Commission. In particular, 10 CFR 50.51 entitled "Duration of License," provides:

> "Each license will be issued for a fixed period of time to be specified in the license but in no case to exceed 40 years from the date of issuance. Where the operation of a facility is involved the Commission will issue the license for the term requested by the applicant or for the estimated useful life of the facility if the Commission determines that the estimated useful life is less than the term requested...".

This regulation clearly requires the NRC to grant Commonwealth Edison's request for 40 year operating license unless the useful life of the Byron and Braidwood units is determined to be something less. In addition, the language of Section 50.51 states that the license should run "from the date of issuance", not from a date prior to the issuance.

The statute and the regulation do provide for renewal of licenses upon expiration. However, re-licensing a nuclear power plant would be an enormous and uncertain undertaking which should only be pursued when a plant is to be operated beyond its original design lifetime. Re-licensing cannot be regarded as a satisfactory answer to our present request for the full 40 year operating license terms to which Commonwealth Edison is entitled.

SAFETY CONSIDERATIONS

The Byron and Braidwood units and the associated structures, facilities, utilities, and transportation services were designed to meet, with margin, the objective of 40 years of commercial service on the Commonwealth Edison network. Our decision to construct these units was made on that basis. In anticipation of long service life from nuclear generating stations Commonwealth Edison purchased and operates a uranuim mine and mill to retain the long-term economic advantage that nuclear generation has over alternative power generation methods. For our new nuclear units, as well as our operating nuclear units, that economic advantage is expected to remain favorable and to endure over a period exceeding the 40 year design life of the Byron and Braidwood units.

All aspects of the design of Byron and Braidwood stations have been chosen to be compatible with a 40-year operating lifetime objective. For example, the corrosion allowance on piping, tanks, valves and pump bodies, was conservatively established for 40 years of service and was measured in the preservice inspection program to verify that the minimum thickness met ASME code requirements. The allowable stress levels in the power generation and safety equipment have been established on the basis of service conditions more severe than those expected in 40 years of routine power and transient operation. A program of inservice inspection will verify the continuing adequacy of piping and components. The concrete primary containment structure was initially prestressed with margin for 40 years of service, although this can be adjusted in future years. Internal shielding and equipment access were designed on the ALARA principle for a full 40 year service life. The radwaste equipment was designed to accommodate conditions throughout the full 40 year life. Plant structures have been designed to accommodate thermal, hydrodynamic, seismic and other cyclic loads for 40 years of operation plus margin. The reactor vessels and internal structures which will be subjected to high neutron fluence have all been designed to accommodate the effects of 40 years of exposure. Our programs for seismic and environmental qualification of electrical and mechanical equipment have used a 40 year life as a goal. Test conditions and qualification envelopes are evaluated against this objective. Appraisals of life-limited equipment have resulted in surveillance and maintenance requirements to maintain the qualification objective throughout plant lifetime. To verify the continued operability of engineered safeguards equipment, the performance of plant systems will be routinely tested as described in the Technical Specifications. Safety margins are all established with acknowledgment of the limitations imposed by a 40 year design life.

The combination of conservative design and extensive surveillance gives us confidence that the four Byron/Braidwood units can be safely operated for 40 years. If new information should necessitate the upgrading of particular safety aspects of plant design, our experience in the operation of Dresden, Quad Cities, Zion, and LaSalle County stations indicates that such upgrading can be accomplished without altering the long-term economic advantage of these nuclear units.

ENVIRONMENTAL CONSIDERATIONS

There is no significant adverse environmental impact associated with extending the operating authorization to the full 40 year term. Both generating stations are in rural areas where population growth during the 40 year operating life is not expected to have any significant effect upon site desirability. The continued impact of plant operation upon ground-water, surface water and aquatic biota is small. The adverse effects are also small in terms of terrestial resources, visual intrusion, noise, traffic, demands on public and private facilities and services, accident risk, human health effects, and in the balance of the fuel cycle. The magnitude of these effects is not expected to vary significantly over the 40 year operating life. Continued operating and fuel costs are more than balanced by the income from the continuing production of electricity, annual employment, local tax payments and the secondary benefits associated with the use of electricity from these units and the money paid as wages and taxes. Operation of nuclear generating units provides continued diversity of supply on the Commonwealth Edison electrical grid and provides additional reductions in generating costs over alternative forms of generation. Extension of the operating life also defers capital costs and environmental impacts of replacement generating capacity.

SUMMARY

Upon consideration of the enormous effort which has gone into the design, construction, and licensing of the Byron and Braidwood stations, it is apparent that issuance of 40 year operating licenses serves the interest of the NRC, the applicant, and the public. There are no safety or environmental concerns which would prevent issuance of 40 year licenses. In such cases the NRC is obligated to issue 40 year licenses. The precedent for issuance of 40 year licenses has been firmly established in the LaSalle County licenses, NPF-11 and NPF-18.

Commonwealth Edison asks that the NRC staff grant our request to have the operating licenses for the four Byron and Braidwood units issued for full 40 year terms beginning with the dates of issuance. In the event the Staff cannot support our position, we ask that our request be forwarded to the Commission for its consideration and that we be given an opportunity to address the Commission in support of our request. Commonwealth Edison would like to stress, however, that its principal concern lies in the timely licensing of these units. We do not want this request to result in any delay in the licensing process.

Very truly yours,

T. R. Tramm

T. R. Tramm
Nuclear Licensing Administrator

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