ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
UNITED STATES ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

April 7, 1971

Honorable Glenn T. Seaborg
Chairman
U. S. Atomic Energy Commission
Washington, D. C. 20545

Subject: PILGRIM NUCLEAR POWER STATION

Dear Dr. Seaborg:

At its one-hundred thirty-second meeting, April 1-3, 1971, the Advisory Committee on Reactor Safeguards reviewed the application by Boston Edison Company for authorization to operate the Pilgrim Nuclear Power Station, comprising a single nuclear power generating unit, at power levels up to 1998 MW(t). The application was previously considered at a Subcommittee meeting held at the site on March 22, 1971. During its review the Committee had the benefit of discussions with representatives and consultants of Boston Edison Company, General Electric Company, Bechtel Corporation, and the AEC Regulatory Staff, and of the documents listed below. The Committee reported to you at the construction permit stage for this station on April 12, 1968.

The Pilgrim Nuclear Station is on the west shore of Cape Cod Bay, approximately five miles from the center of Plymouth, Massachusetts (population about 11,000). Boston is 36 miles northwest of the site, and Providence is 44 miles west. The Pilgrim reactor is a boiling water reactor generally similar to Millstone Unit 1 and other boiling water reactors recently reviewed by the Committee for operation.

The applicant has not provided equipment for concentrating and separating radioactivity from liquid wastes, and he states that the radioactivity concentration in the condenser circulating water discharge will not exceed that permitted by 10 CFR 20. During the first reactor shutdown for refueling, the applicant will install an evaporator designed to permit the holdup of liquid wastes and thereby reduce the gross radioactivity discharged. The Committee believes that the design and operation of this evaporator system should be such as to reduce to levels as low as practicable the amount of long-lived radioisotopes discharged. The Regulatory Staff should review and approve the design and operating mode of this equipment. The Committee also believes that prior to the installation of this equipment, effort should be made to reduce the radioactivity released.

The applicant proposes that the gaseous and particulate radioactivity discharged through the stack will not exceed 10 CFR 20 limits. The Committee believes the applicant should set a much lower operating limit and should make such equipment changes as may be necessary to accomplish this.

In previous reports, the Committee has commented on the following matters common to boiling water reactors recently reviewed for operation; these comments apply also to the Pilgrim Plant. The Committee believes that the reactor containment should be inerted during normal operation, and that the primary control of accident-generated hydrogen should be by some method other than purging; the need for inerting should be reviewed periodically as operating experience and further knowledge from development work are obtained and as other means of coping with hydrogen are found. The applicant proposes to protect the containment against breaching that may be caused by whipping of unrestrained piping in the event of a pipe rupture, and also to guard against missiles that could be generated from the biological shield by rupture of pipes, including safe-ends, within the shield.

The applicant proposes to assure that accidental dropping of the spent-fuel cask into the fuel storage pool will not cause leakage in excess of the make-up capacity, and will make such modifications as may be necessary. The applicant said he would make tests adequate to confirm the predicted vibrational characteristics of the vessel internals. The Committee believes the applicant should make timely proposals for resolution of the problem of possible failure to scram on anticipated transients. The applicant should reevaluate, before routine operation at full power, the performance of the emergency core cooling system, using recent heat transfer data and calculational methods. Several items regarding plant instrument systems and electrical systems are under review by the Regulatory Staff. All these matters should be resolved to the satisfaction of the Regulatory Staff; the Committee wishes to be kept informed.

The Committee believes the applicant should continue to explore means of improving access to vessel welds for inservice inspection. The Committee also believes that the reactor vessel pressure should be limited in accordance with current AEC bases when the vessel temperature is below 180°F.

The site is served by two 345 kv electrical transmission lines on the same towers and a separate 23 kv line. Over a short distance the lines are adjacent and it is physically possible for the fall of a tower to break the 23 kv line. The Committee believes that the applicant should explore the feasibility of using an alternative 23 kv supply or of making local changes to reduce the possibility of losing the 345 and 23 kv lines simultaneously.

The Advisory Committee on Reactor Safeguards believes that, if due regard is given to the items mentioned above, and subject to satisfactory completion of construction and pre-operational testing, there is reasonable assurance that the Pilgrim Nuclear Power Station can be operated at power levels up to 1998 MW(t) without undue risk to the health and safety of the public.

Sincerely yours,

/s/

Spencer H. Bush
Chairman

References - Pilgrim Nuclear Power Station

1. Amendment Nos. 12 through 27 to License Application for the Pilgrim Nuclear Power Station and Volumes 1 through 5 of FSAR.

2. Letter from Boston Edison Company, dated September 26, 1968; Report entitled "Installation of Stub Tubes - Pilgrim Station Reactor Vessel - Boston Edison Project".