

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

May 15, 1968

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

Subject: REPORT ON THE KEWAUNEE NUCLEAR POWER PLANT

Dear Dr. Seaborg:

At its ninety-seventh meeting, on May 9-11, 1968, the Advisory Committee on Reactor Safeguards completed a review of the combined application of the Madison Gas and Electric Company, the Wisconsin Power and Light Company, and the Wisconsin Public Service Corporation to construct a nuclear power station near Kewaunee, Wisconsin. The Wisconsin Public Service Corporation is designated to act for all three organizations and to operate the plant. The project and site location were considered at a Subcommittee meeting and site visit on April 25, 1968. During its review, the Committee had the benefit of discussions with the Wisconsin Public Service Corporation, the Westinghouse Electric Corporation, Pioneer Service and Engineering Company, the AEC Regulatory Staff, consultants of these organizations and study of the documents listed below.

The Kewaunee Nuclear Power Plant will be located on the shore of Lake Michigan in Kewaunee County, about 25 miles southeast of Green Bay, Wisconsin. The surrounding countryside is rural and relatively sparsely populated; the nearest community is Kewaunee, population about 2700, located seven miles north. The Point Beach reactor site, previously reviewed, is four and one-half miles south.

The reactor design is similar to that reviewed for the Prairie Island application (ACRS report dated March 12, 1968). The steam supply system is a two-loop, pressurized-water reactor to be operated at a power of 1650 MWt (559 MWe). The emergency core cooling systems are to be sized to assure sufficient cooling water to maintain the integrity and the original geometry of the core in the unlikely event of the most serious pipe rupture and subsequent loss of coolant.

The containment concept, also similar to that for Prairie Island, consists of a free-standing steel shell which, in turn, is contained within a cylindrical concrete structure. An annular space of about five feet

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exists between these two structures. In this design, leakage from the primary steel containment would be collected within the concrete shell, circulated through charcoal filters, and then discharged to the atmosphere. The applicant expects that the release of radioactive iodine to the atmosphere in the unlikely event of a major reactor accident would be significantly less than for single containment designs.

The Committee continues to believe that control and protection instrumentation should be separated to the fullest extent practical. There remain questions in this area on the Kewaunee design. The Committee recommends that the Regulatory Staff review the protection system design before its fabrication and installation.

The Committee continues to emphasize the importance of quality assurance in fabrication of the primary system as well as inspection during service life, and recommends that the applicant implement those improvements in quality that are practical with current technology. The Committee also calls attention to those matters previously emphasized, which it deems to be important for all large water-cooled power reactors.

The Committee believes that the various items mentioned can be resolved during construction and that the proposed power plant can be constructed at the Kewaunee site with reasonable assurance that it can be operated without undue risk to the health and safety of the public.

Sincerely yours,

/s/

Carroll W. Zabel
Chairman

References attached.

References:

1. Wisconsin Public Service Corporation, Kewaunee Nuclear Power Plant, Application for Licenses with transmittal letter, dated August 18, 1967.
2. Wisconsin Public Service Corporation, Kewaunee Nuclear Power Plant, Facility Description and Safety Analysis Report, Volumes I, II, III, and IV.
3. Amendment No. 1 to License Application, Wisconsin Public Service Corporation, dated January 2, 1968.
4. Amendment No. 2 to License Application, Wisconsin Public Service Corporation, dated February 12, 1968.
5. Amendment No. 3 to License Application, Wisconsin Public Service Corporation, dated March 15, 1968.
6. Amendment No. 4 to License Application, Wisconsin Public Service Corporation, dated April 1, 1968 and errata sheets, received April 10, 1968.
7. Amendment No. 6 to License Application, Wisconsin Public Service Corporation, dated May 3, 1968.