ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

May 12, 1976

Honorable Marcus A. Rowden
Chairman
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: REPORT ON KOSHKONONG NUCLEAR PLANT, UNITS 1 AND 2

Dear Mr. Rowden:

During its 193rd meeting, May 6-8, 1976, the Advisory Committee on Reactor Safeguards completed its review of the application of the Wisconsin Electric Power Company, Wisconsin Power and Light Company, Wisconsin Public Service Corporation, and Madison Gas and Electric Company (the Applicants) for a permit to construct the Koshkonong Nuclear Plant, Units 1 and 2. The site was visited on October 17, 1975. The application had been previously reviewed at the Committee's 188th meeting, January 8-10, 1976, and at Subcommittee meetings in Ft. Atkinson, Wisconsin on October 17, 1975 and Washington, DC on December 3, 1975 and May 5, 1976. The Committee issued an Interim Report dated January 15, 1976. During its review, the Committee had the benefit of discussions with representatives and consultants of the Applicants, Westinghouse Electric Corporation, Stone and Webster Corporation, the Nuclear Regulatory Commission (NRC) Staff, and of the documents listed.

The application to build the Koshkonong Nuclear Plant is a part of the Wisconsin Utilities Project (WUP), for licenses to construct one or more standardized nuclear power plants at one or more sites in Wisconsin, using the duplicate plant option, Appendix N to 10 CFR Part 50. The Committee is restricting its current review to Koshkonong Units 1 and 2 since the schedule for the other plants is not well specified, and it may be appropriate to incorporate design changes in the plans for the future plants.

The Applicants used the October 1975 Westinghouse emergency core cooling system (ECCS) model as approved by the NRC Staff to demonstrate compliance with Appendix K to 10 CFR Part 50. The limiting peaking factor at full power is 2.18. The Applicants have committed to install an Axial Power

Distribution Monitoring System or otherwise to demonstrate the capability to manage core power distribution within the limiting peaking factor envelope. The NRC Staff considers this resolution of the ECCS evaluation adequate for purposes of issuance of a construction permit. The Committee concurs with this conclusion; however, the Committee recommends aggressive pursuit of possible improvements in the reliability and function of the ECCS for Koshkonong Units 1 and 2.

The Applicants and the NRC Staff have agreed that horizontal ground accelerations of 0.2g and 0.06g are appropriate design values for the safe shutdown earthquake (SSE) and operating basis earthquake (OBE), respectively. The Committee concurs with these values for the Koshkonong Plant. The Applicants selected the OBE on the basis of economics, holding that the minimum value of the OBE is not safety related. The NRC Staff required the Applicants as a part of their economic evaluation to demonstrate that an earthquake equivalent to the OBE would have a reasonably long return interval. Applying a probabilistic analysis to historic data of the tectonic province, the Applicants estimated a return interval of 1,000 years. The NRC Staff accepted this as a reasonable period. In this regard, the Committee urges the NRC Staff to develop general criteria for the determination of an acceptable OBE. The Committee wishes to be kept informed.

The NRC Staff has completed its evaluation of the liquid and gaseous radioactive waste treatment systems and has concluded that these systems are capable of meeting the design objectives of Appendix I to 10 CFR Part 50.

Two outstanding issues remain to be resolved prior to the NRC Staff recommendation for issuance of a construction permit:

(1) The NRC Staff's review of the Westinghouse Analysis of Anticipated Transients Without Scram (ATWS), WCAP-8330, will be completed in the next few weeks and the final implementation plan for the Koshkonong Plant is under development. The Applicants have stated that it will be feasible to accommodate changes in plant design likely to be required by the implementation program. The Committee wishes to be kept informed.

(2) The implementation of the quality assurance program will remain an outstanding issue until the restrictions imposed by the Public Service Commission of Wisconsin on fund expenditures are removed. The Committee recommends that this issue be resolved to the satisfaction of the NRC Staff.

The Committee believes that the Applicants and the NRC Staff should review the Koshkonong Plant for design features that could significantly reduce the possibility and consequences of sabotage, and that such features should be incorporated into the plant design where practicable. The Committee wishes to be kept informed.

Generic problems relating to large water reactors are discussed in the Committee's April 16, 1976 Status Report Number 4. These problems should be dealt with in a timely fashion by the NRC Staff and the Applicants.

The Advisory Committee on Reactor Safeguards believes that the items mentioned above and those of the Committee's letter of January 15, 1976, can be resolved during construction and that, if due consideration is given to the foregoing, the Koshkonong Nuclear Plant, Units 1 and 2 can be constructed with reasonable assurance that they can be operated without undue risk to the health and safety of the public.

Sincerely yours,

Dade W. Moeller

Dade W. Moeller
Chairman

References

1. Koshkonong Nuclear Plant Units 1 and 2, Preliminary Safety Analysis Report (August 1974) with Amendments 1 through 10.

2. Koshkonong Nuclear Plant PSAR Site Addendum (August 1974) with Amendments 1 through 10.

3. Safety Evaluation Report NUREG-75/092 related to construction of the Koshkonong Nuclear Plant Units 1 and 2, October 1975.

4. Safety Evaluation Report NUREG-0051 (Supplement to NUREG 75/092) related to construction of Koshkonong Nuclear Plant, Units 1 and 2, April 1976