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

October 16, 1975

Honorable William A. Anders
Chairman
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: REPORT ON THE WOLF CREEK GENERATING STATION, UNIT 1

Dear Mr. Anders:

During its 186th meeting, October 9-11, 1975, the Advisory Committee on Reactor Safeguards reviewed the application of Kansas Gas and Electric Company and Kansas City Power and Light Company for a permit to construct Wolf Creek Generating Station Unit 1. The site was visited on September 25, 1975, and a Subcommittee meeting was held in Emporia, Kansas on September 26, 1975. The "Standardized Nuclear Unit Power Plant System" (SNUPPS), to be utilized at the Wolf Creek site and three other plant sites, was also reviewed at a Subcommittee meeting held in Washington, D. C. on August 19, 1975, and at the 185th and the 186th meetings of the Committee. During its reviews, the Committee had the benefit of discussions with the Nuclear Regulatory Commission (NRC) Staff, and representatives of the applicants, the Westinghouse Electric Corporation and the Bechtel Corporation. The Committee also had the benefit of the documents listed below.

The Wolf Creek plant will be located on a 10,000-acre site in the Neosho River Basin in Coffey County, Kansas, about 28 miles east-southeast of Emporia, the nearest population center (1970 population: about 23,000). The exclusion area extends radially from the center of the reactor building a distance of 1200 meters. Except for several existing public roads which the applicants have assured can and will be abandoned prior to the start of construction, the applicants own all the area within the exclusion zone.

The SNUPPS will utilize the RESAR-3 Consolidated Version, four-loop pressurized water nuclear reactor having a core power output of 3411 MW(t). This design is similar to that utilized at the Comanche Peak Steam Electric Station Units 1 and 2, reported on by the Committee in its letter of October 18, 1974. The Committee's continuing review of the SNUPPS was reported on in its Callaway letter dated September 17, 1975. It is anticipated that the Committee's report on the remainder of its review of SNUPPS will be included in its report on the Tyrone application.

The NRC Staff has identified several items in its review of the Wolf Creek application which are not yet completed. The Committee recommends that any outstanding issues which may develop in the course of completing these reviews be dealt with in a manner satisfactory to the NRC Staff. The Committee wishes to be kept informed on the resolution of the following items:

1. The emergency core cooling system evaluation in compliance with the Final Acceptance Criteria.

2. The analyses of the effects of anticipated transients without scram.

3. The evaluation of the plant design to meet the requirements of the new Appendix I of 10CFR Part 50.

The RESAR-3 Consolidated Version nuclear design utilizes the Westinghouse 17x17 fuel assembly. Westinghouse has identified an integrated test program to confirm the safety margins associated with this design, which it plans to complete late this year. The RESAR-3 reactor core design has been calculated by Westinghouse to be stable against radial xenon oscillations. Westinghouse has agreed to verify this stability in a startup physics test for a 193 fuel assembly core similar to SNUPPS. The Committee will continue to review these matters as appropriate documentation is submitted.

The Committee recommended in its report of September 10, 1973, on acceptance criteria for ECCS, that significantly improved ECCS capability should be provided for reactors for which construction permit requests are filed after January 7, 1972. The SNUPPS design is in this category. These units will use the 17x17 fuel assemblies similar to those to be used in Comanche Peak Steam Electric Station, Units 1 and 2. Although calculated peak clad temperatures in the event of a postulated LOCA are less for 17x17 assemblies than for a 15x15 array, the Committee believes that the applicants should continue studies that are responsive to the Committee's September 10, 1973 report. If studies establish that significant further ECCS improvements can be achieved, consideration should be given to incorporating them into this unit.

The Wolf Creek Plant, Unit 1 will be the first commercial nuclear power plant in the State of Kansas. For this reason, the Committee recommends that the applicant and the NRC Staff give particular attention to assuring proper coordination with appropriate state agencies in the development of effective emergency plans for this facility.

The Committee believes that the applicants and the NRC Staff should continue to review the Wolf Creek plant design for features that could reduce the possibility and consequences of sabotage.

The Committee recommends that the NRC Staff and the applicants review the design features that are intended to prevent the occurrence of damaging fires and to minimize the consequences to safety-related equipment should a fire occur. This matter should be resolved to the satisfaction of the NRC Staff. The Committee wishes to be kept informed.

Generic problems relating to large water reactors are discussed in the Committee's report dated March 12, 1975. These problems should be dealt with appropriately by the NRC Staff and the applicants.

The Advisory Committee on Reactor Safeguards believes that the items mentioned above and the items mentioned in its Callaway letter, which are relevant to the Wolf Creek application, can be resolved during construction, and that if due consideration is given to the foregoing, the Wolf Creek Generating Station Unit 1 can be constructed with reasonable assurance that it can be operated without undue risk to the health and safety of the public.

Sincerely yours,

W Kerr

W. Kerr
Chairman

References

1. SNUPPS Preliminary Safety Analysis Report with Revisions 1 through 10 and the Wolf Creek Site Addendum Report with Revisions 1 through 7.

2. RESAR-3 Consolidated Version, Westinghouse Reference Safety Analysis Report with Amendments 1 through 6.

3. Safety Evaluation Report NUREG 75/080 related to the construction of the Wolf Creek Generating Station, Unit No. 1, Docket No. STN 50-482, September, 1975.