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

February 1, 1960

Honorable John A. McCone
Chairman
U. S. Atomic Energy Commission
Washington 25, D. C.

Subject: YANKEE NUCLEAR POWER STATION - YANKEE ATOMIC ELECTRIC COMPANY*

Dear Mr. McCone:

At its twenty-third meeting, January 28-29-30, 1960, the Advisory Committee on Reactor Safeguards considered various safety aspects of the Yankee Atomic Electric Company 485 MW (thermal) pressurized water power plant. In addition to the reports referenced below, discussions were held with the Hazards Evaluation Branch, Stone & Webster Engineering Corporation, Yankee Atomic Electric Company, and Westinghouse Electric Corporation.

In our letter of September 16, 1957, relative to the Yankee construction permit, the ACRS pointed out that the design of this reactor included three novel features: addition of soluble neutron absorbers, intentional design into the reactor of nucleate boiling, and large plutonium buildup, all of which would require extensive investigation.

The problem of nucleate boiling and the use of boric acid as a soluble poison to supplement the control rods during cold shut down have been thoroughly investigated and solutions to these problems satisfactory to the HEB and the Committee have been reported in the Final Hazards Summary Report.

Amendment No. 7 proposes determination of effect of plutonium buildup in an experimental program to measure temperature coefficients, prompt and overall, in the actual power reactor at startup, after 2000 hours of operation, and at intervals while plutonium is growing into the core.

In a letter dated October 21, 1958, the ACRS agreed that effect of plutonium buildup on these coefficients would be small enough to permit these measurements to be made with safety in the actual reactor.

Amendment No. 8 covered a plant for disposal of gaseous liquid and combustible solid wastes. In the letter of October 21, 1958, the ACRS agreed with HEB that proposed facilities will permit disposal of wastes without undue hazard to on-site or off-site personnel.

Amendment No. 18 is a proposal stating intent to modify the reactor design to permit continued operation of the plant even with leakage from the primary to the secondary system. The changes are discussed in general, but no design details were supplied. The Committee concurs in principle that the general plan can permit this leakage without undue hazard to the public, but cannot comment on design detail.

The general design of the reactor and the proposed startup procedures and schedules are considered acceptable. The applicant's proposal to review its operation at the 392 MW (thermal) power level before proceeding to higher powers is endorsed.

The Committee believes that the broad problems indicated at the time of the issuance of the construction permit have been resolved. It is the Committee's opinion that this reactor can be operated without undue risk to the health and safety of the public.

Sincerely yours,

/S/

Leslie Silverman
Chairman

cc: A.R. Luedecke, GM
W.F. Finan, OGM
H.L. Price, DL&R
ACRS Members & Dr. Duffey (except Dr. Thompson)

bc: L.K. Olson, GC

References:

1) Final Hazards Summary Report, Volumes I and II, (undated) received September 1959.
2) Amendment No. 15 to License Application dated July 29, 1956, October 2, 1959.
3) Amendment No. 16 to License Application, December 4, 1959.
4) Amendment No. 17 to License Application, January 11, 1960.
5) Amendment No. 18 to License Application, January 13, 1960.
6) Office of Health and Safety Comments, October 23, 1959.
7) Division of Licensing Report to ACRS, October 28, 1959.
8) Division of Licensing and Regulation Report to ACRS, January 12, 1960.

*Theos J. Thompson did not participate in these reviews or discussions.