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

October 12, 1967

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

Subject: REPORT ON PEACH BOTTOM ATOMIC POWER STATION UNITS NO. 2 AND 3

Dear Dr. Seaborg:

At its ninetieth meeting, on October 5-7, 1967, the Advisory Committee on Reactor Safeguards completed its review of the application by Philadelphia Electric Co. for authorization to construct the Peach Bottom Atomic Power Station Units No. 2 and 3. This project was previously considered at ACRS Subcommittee meetings held at the Peach Bottom Atomic Power Station site on August 25, 1967, and in Washington, D. C. on September 20, 1967. During its review, the Committee had the benefit of discussions with representatives of Philadelphia Electric Co., General Electric Co., Bechtel Corporation, and the AEC Regulatory Staff, as well as the documents listed below.

The two units are to be located adjacent to the existing high-temperature, gas-cooled nuclear power plant (Unit No. 1) on a 600-acre site in Peach Bottom Township, York County, Pennsylvania. The site, located approximately 38 miles north-northeast of Baltimore, Maryland and 63 miles west-southwest of Philadelphia, Pennsylvania, is on the west bank of Conowingo Reservoir, formed by the Conowingo Dam on the Susquehanna River.

Each unit includes a boiling water reactor to be operated at a maximum power level of 3295 MWt. With respect to core design, power level, and other features of the nuclear steam supply system, Peach Bottom Units 2 and 3 are essentially duplicates of the Browns Ferry units of the Tennessee Valley Authority, previously discussed in the Committee's letter to you dated March 14, 1967.

In the unlikely event of failure of Conowingo Dam, the normal source of cooling water for the two units would no longer be available. The applicant described several possible schemes for removing shutdown heat from the plant in the event that the reservoir level should fall below the normal cooling water inlet. Such a system should be designed and constructed to the same criteria as applied to other Class I structures in the plant. The design of this system should be reviewed by the Regulatory Staff.

The present design of the units includes a ring header to supply water from the torus to the emergency core cooling systems. The applicant discussed a possible modification intended to simplify the piping and reduce susceptability to single point failure. The Committee believes that this matter should be resolved between the applicant and the Regulatory Staff.

To meet water temperature criteria of the Commonwealth of Pennsylvania, the use of cooling towers may be required for plant cooling water. A hydraulic model of the Conowingo Reservoir has been built and is being tested to determine how the criteria will be met. The Committee believes that one or more of the possible arrangements of cooling towers could be installed without adverse effects on the health and safety of the public, and that this matter can be resolved between the applicant and the Regulatory Staff.

The film condensation coefficient used to predict the depressurization performance of the High Pressure Coolant Injection (HPCI) system is based on extrapolation of available heat transfer data. Additional experiments or other supporting studies are needed to confirm the effectiveness of the HPCI system, and the results should be reviewed by the Regulatory Staff.

The Committee, in its letter to you of March 14, 1967, called attention to a number of matters that warrant careful consideration with regard to reactors of the Browns Ferry design, and other matters of significance for all large water-cooled power reactors. These matters apply similarly to Peach Bottom Units No. 2 and 3.

As in the case of the Browns Ferry units, a careful startup program will be required. If the startup program or additional information on fuel behavior fail to confirm adequately the design basis, system modifications or restrictions on operation may be appropriate..

The Advisory Committee on Reactor Safeguards believes that the items mentioned above can be resolved during construction of the proposed reactors. On the basis of the foregoing comments and in view of the

favorable characteristics of the site, the Committee believes that the proposed Peach Bottom Atomic Power Station Units No. 2 and 3 can be constructed with reasonable assurance that they can be operated without undue risk to the health and safety of the public.

Sincerely yours,

/s/

N. J. Palladino
Chairman

References:

1. Philadelphia Electric Company letter dated February 10, 1967; License Application, Peach Bottom Atomic Power Station Units No. 2 & 3, dated February 6, 1967; Preliminary Safety Analysis Report, Volumes 1 and 2.
2. Philadelphia Electric Company letter dated July 12, 1967; Amendment No. 1 to License Application, dated July 11, 1967; Supplement No. 1 to Preliminary Safety Analysis Report.
3. Philadelphia Electric Company letter dated September 8, 1967; Amendment No. 2 to License Application, dated September 7, 1967; Supplement No. 2 to Preliminary Safety Analysis Report.
4. Philadelphia Electric Company letter dated September 26, 1967; Amendment No. 3 to License Application, dated September 25, 1967.
5. Amendment No. 4 to License Application of Philadelphia Electric Company, Peach Bottom Atomic Power Station, Units No. 2 and 3, dated October 6, 1967.