UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D.C.

IN REPLY REFER TO:
Docket No. 50-171

OCT 20 1961

Honorable Luther L. Terry
Surgeon General, U. S. Public Health Service
Department of Health, Education, and Welfare
Washington 25, D. C.

Dear Dr. Terry:

In accordance with the understanding reached August 1, 1961 between the Atomic Energy Commission and the Department of Health, Education and Welfare attached for your information are the following documents:

Philadelphia Electric Company
Docket No. 50-171

Amendment No. 3 to the Application of Philadelphia Electric Company for Construction Permit and Class 104 License.

Distribution
Doc. Rm.
Formal
Suppl.
L&R reading
FWKaras

Sincerely yours,

(Signed) R. Lowenstein

R. Lowenstein
Director
Division of Licensing and Regulation

DL&R	DL&R	DL&R
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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

UNITED STATES ATOMIC ENERGY COMMISSION

Washington 25, D. C.

November 1, 1961

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

Subject: REPORT ON THE PEACH BOTTOM ATOMIC POWER STATION, PHILADELPHIA ELECTRIC COMPANY

Dear Dr. Seaborg:

At its thirty-seventh meeting, October 26-28, 1961, the Advisory Committee on Reactor Safeguards reviewed the 115 MW (thermal) helium cooled, graphite moderated, high temperature reactor to be constructed at the Philadelphia Electric Company Peach Bottom site in southeastern Pennsylvania. This reactor was considered previously at the Committee's twenty-fourth and thirtieth meetings. In addition, a subcommittee has met with the applicant, contractor, and the staff on February 17, 1960, March 15-16, 1961 (at La Jolla, California) June 2, 1961 and October 3, 1961.

At the discussion on October 27, 1961, representatives of General Atomic Division of General Dynamics Corporation, Bechtel Company, and members of the AEC staff were present. The Committee has also had the benefit of reports from its subcommittee and the documents referenced below.

In its reports dated March 14, 1960 and December 10, 1960, the Committee expressed the opinion that the site is suitable for a reactor of this general design and power level. In those reports several questions were raised relative to problems requiring investigation because of novel design features.

The extensive research and development program which is being carried on by General Atomic Division has resulted in the development of pertinent information. Design modifications have been made which appear to resolve the safety questions that have been raised.

While the hydraulic control rod system remains basically the same, the added rod separation detection system, electrically driven emergency shutdown-rods, fusible-link poison rods, and installation of a finger-type holding lock on control rods provide a satisfactory control and backup scheme. A testing program which is underway on a prototype hydraulic control rod system involving starts and stops, a large number of scrams, and a series of malfunction tests appears to indicate its reliability.

The questions raised concerning the inherent shutdown characteristics appear to have been resolved by changes in thorium concentration and addition of rhodium to the core, and recalculation and measurements on the Doppler contribution. It has been stated by the applicant that, as a result of these changes, the temperature coefficient is negative throughout core life and at all temperatures up to 4000°F.

In order to prevent reaction between core graphite and moisture, provision has been made for rapid moisture detection, loop isolation, and scramming the reactor if excessive moisture is detected in the primary system. Further protection of the graphite is provided by maintaining the oxygen content of the containment vessel at a level below 5%. An emergency cooling system has been provided around the reactor cavity to remove decay heat after shutdown in the event of loss of coolant circulation. Design specifications, including inspection procedures provide a basis for assuring the integrity of the containment shell. In addition, the research and development program gives reasonable assurance as to the long term integrity of the graphite.

Considerable information has been developed on barriers against fission product release. Pyrolytic coating of fuel particles, the use of an impervious graphite sleeve around the fuel compacts, internal fission product traps on fuel elements, and external fission product traps are proposed as the means of controlling fission product concentration in the coolant. The current results of the fission product research program appear to be favorable. However, should later results indicate that a reliable system can not be obtained by the present approach, alternate methods appear to be available to insure that the fission product concentration in the helium coolant will be kept low.

Since the continuing research program gives reasonable assurance that all health and safety problems can be satisfactorily resolved, the ACRS believes that the proposed reactor can be constructed at the Peach Bottom site with reasonable assurance that it can be operated without undue risk to the health and safety of the public.

Dr. John C. Geyer did not participate in these reviews or discussions.

Sincerely yours,

/s/ T. J. THOMPSON

T. J. Thompson
Chairman

References:

1. Amendment #2 to Application of Philadelphia Electric Company, Part B, dated August 4, 1961.

2. Amendment #3 to Application of Philadelphia Electric Company, dated October 17, 1961.

UNITED STATES OF AMERICA

ATOMIC ENERGY COMMISSION

In the Matter of)
) Docket No. 50-171
Philadelphia Electric Company)

NOTICE OF HEARING ON APPLICATION FOR CONSTRUCTION PERMIT

Pursuant to the Atomic Energy Act of 1954, as amended, and the regulations in Part 2, 10 CFR "Rules of Practice", notice is hereby given that a hearing will be held at 10:00 A.M., E.S.T., on December 18, 1961, in the Auditorium of the Atomic Energy Commission Headquarters at Germantown, Maryland, to consider the issuance of a construction permit to the Philadelphia Electric Company (hereinafter referred to as the "applicant"), 1000 Chestnut Street, Philadelphia 5, Pennsylvania, under Sections 104 b. and 185 of the Atomic Energy Act of 1954, as amended, for the construction of a 40,000 kilowatt (electrical) advanced high-temperature gas-cooled demonstration power reactor. The reactor will be located at the applicant's site at Peach Bottom, York County, Pennsylvania, which is situated approximately 63 miles southwest of Philadelphia, Pennsylvania and 38 miles northeast of Baltimore, Maryland.

The issues to be considered at the hearing will be the following:

1. Whether the applicant has submitted sufficient information to provide reasonable assurance that a utilization facility of the general type proposed in the application can be constructed and operated at the proposed location without undue risk to the health and safety of the public;

2. Whether there is reasonable assurance that the technical information omitted from and required to complete the application will be supplied;

3. Whether the applicant is technically qualified to design and construct the proposed facility.

4. Whether pursuant to Section 50.40 (b) of the AEC's regulations the applicant is financially qualified to design and construct the facility; and

5. Whether the construction of the reactor will be inimical to the common defense and security or to the health and safety of the public.

The report of the AEC's Advisory Committee on Reactor Safeguards dated November 1, 1961 and the safeguards analysis prepared by the AEC staff in this matter will be available for public inspection at the AEC's Public Document Room, 1717 H Street, N. W., Washington, D. C. Copies of each report may be obtained by request to the Director of Division of Licensing and Regulation, United States Atomic Energy Commission, Washington 25, D. C. The application submitted by the applicant in this matter is also available for public inspection at the AEC's Public Document Room.

Answer to this notice of hearing shall be filed by the applicant in the manner prescribed by Section 2.736 of the Commission's "Rules of Practice", 10 CFR 2, on or before December 4, 1961.

Petitions for leave to intervene must be received in the Office of the Secretary, Atomic Energy Commission, Germantown, Maryland, or in the AEC's Public Document Room, 1717 H Street, N. W., Washington, D. C., not later than thirty days after publication of this notice in the Federal Register, or in the event of a postponement of the hearing date specified above at such time as the Presiding Officer may provide.

Papers required to be filed with the AEC in this proceeding shall be filed by mailing to the Secretary, Atomic Energy Commission, Washington 25, D. C., or may be filed in person at the Office of the Secretary, Atomic Energy Commission, Germantown, Maryland, or at the AEC's Public Document Room, 1717 H Street, N. W., Washington, D. C. Pending further order of the Presiding Officer, parties shall file twenty copies of each such paper with the AEC and where service of papers is required on other parties shall serve five copies of each.

The hearing will be conducted by a Presiding Officer to be designated by the Chief Hearing Examiner.

FOR THE ATOMIC ENERGY COMMISSION

R. Lowenstein
Director
Division of Licensing and Regulation

Dated at Germantown, Maryland
this day of , 1961.

1961