

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

September 12, 1968

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

Subject: REPORT ON RUSSELLVILLE NUCLEAR UNIT

Dear Dr. Seaborg:

At its one-hundred-first meeting, September 5-7, 1968, the Advisory Committee on Reactor Safeguards reviewed the proposal of the Arkansas Power and Light Company to construct the Russellville Nuclear Unit. This project had been considered previously during Subcommittee meetings on August 23, 1968, at the site, and on September 4, 1968, in Washington, D. C. In the course of its review, the Committee had the benefit of discussions with representatives and consultants of the Arkansas Power and Light Company, the Bechtel Corporation, the Babcock and Wilcox Company, and the AEC Regulatory Staff. The Committee also had available the documents listed.

The plant will be located about six miles from Russellville, Arkansas, on a peninsula formed by the Dardanelle reservoir. The normal elevation of the reservoir is controlled downstream by the Dardenelle Lock and Dam No. 10 on the Arkansas River. An emergency reservoir on the site will provide adequate storage of water in the unlikely event of failure of Lock and Dam No. 10. The consequences of the maximum probable flood have been studied, and adequate protection has been provided for the critical equipment of the nuclear unit.

The proposed nuclear unit is a pressurized water reactor, 2452 MWt and 850 MWe, and is similar to previously approved units (e.g., Rancho Seco, Crystal River, and Three Mile Island, ACRS Reports of July 19, 1968, May 15, 1968, and January 17, 1968, respectively). The Committee continues to call attention to matters that warrant careful consideration by the manufacturers of all large, water-cooled, power reactors.

The Committee reiterates its belief that the instrumentation design should be reviewed for common failure modes, taking into account the possibility of systematic, non-random, concurrent failures of redundant devices, not considered in the single-failure criterion. The applicant

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should show that the proposed interconnection of control and safety instrumentation will not adversely affect plant safety in a significant manner, considering the possibility of systematic component failure. The Committee believes this matter can be resolved with the Regulatory Staff.

The containment for the reactor is a prestressed concrete vessel similar to previously approved designs (e.g., Rancho Seco), but with modification of the prestressing system design.

The Committee emphasizes the importance of the implementation and management of the quality assurance and quality control programs necessary to achieve the design, construction, and operation objectives.

Inasmuch as a long lead time is required in the training of the operating staff, the Committee emphasizes the need for early training of sufficient personnel to assure adequate operating manpower.

The Advisory Committee on Reactor Safeguards believes that, if due consideration is given to the foregoing items, the proposed reactor can be constructed at the Russellville site with reasonable assurance that it can be operated without undue risk to the health and safety of the public.

Sincerely yours,

/s/

Carroll W. Zabel
Chairman

References Attached.

References - Russellville Nuclear Unit

1. Application for Licenses, Arkansas Power and Light Company Russellville Nuclear Unit, dated November 24, 1967.
2. Volume I - Preliminary Safety Analysis Report, Arkansas Power and Light Company Russellville Nuclear Unit, dated November 24, 1967.
3. Volume II - Preliminary Safety Analysis Report, Arkansas Power and Light Company Russellville Nuclear Unit, dated November 24, 1967.
4. Supplement No. 1 to Application for Licenses, Arkansas Power and Light Company Russellville Nuclear Unit, dated January 22, 1968.
5. Supplement No. 2 to Application for Licenses, Arkansas Power and Light Company Russellville Nuclear Unit, dated February 14, 1968.
6. Supplement No. 3 to Application for Licenses, Arkansas Power and Light Company Russellville Nuclear Unit, dated May 3, 1968.
7. Supplement No. 4 to Application for Licenses, Arkansas Power and Light Company Russellville Nuclear Unit, dated June 5, 1968.
8. Supplement No. 5 to the Arkansas Power and Light Company Preliminary Safety Analysis Report, dated July 3, 1968.
9. Corrections to Supplement No. 5 to the Arkansas Power and Light Company Preliminary Safety Analysis Report, dated July 10, 1968.
10. Supplement No. 6 to Application for Licenses, Arkansas Power and Light Company Russellville Nuclear Unit, dated July 11, 1968.
11. Correction to Supplement No. 6 to Application for Licenses, Arkansas Power and Light Company Russellville Nuclear Unit, dated July 15, 1968.
12. Supplement No. 7 to Application for Licenses, Arkansas Power and Light Company Russellville Nuclear Unit, dated August 15, 1968.
13. Supplement No. 8 to Application for Licenses, Arkansas Power and Light Company Russellville Nuclear Unit, dated August 26, 1968.
14. Supplement No. 9 to Application for Licenses, Arkansas Power and Light Company Russellville Nuclear Unit, dated August 30, 1968.