

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

March 13, 1969

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

Subject: REPORT ON CALVERT CLIFFS NUCLEAR POWER PLANT, UNITS 1 AND 2

Dear Dr. Seaborg:

At its 107th meeting, March 6-8, 1969, the Advisory Committee on Reactor Safeguards completed its review of the application of the Baltimore Gas and Electric Company for authorization to construct a nuclear power plant at its Calvert Cliffs site in Calvert County, Maryland. The project was previously considered at a Subcommittee meeting held on February 24, 1969, at the site. During its review, the Committee had the benefit of discussions with representatives of Baltimore Gas and Electric Company, Combustion Engineering, Incorporated, Bechtel Corporation, the AEC Regulatory Staff, and their consultants. The Committee also had the benefit of the documents listed below.

The Calvert Cliffs Nuclear Power Plant, Units 1 and 2, will be located in a sparsely settled area about 11 miles southeast of Prince Frederick, Maryland (population 550), on the western shore of Chesapeake Bay, five miles northeast of the Patuxent River. Cambridge, Maryland (population 12,239 in 1960), on the east side of the Bay, is 22 miles from the site, and is the largest community within 30 miles. Washington, D. C. is 45 miles northwest of the plant. The site comprises about 1135 acres, and a minimum exclusion distance of 3770 feet has been provided.

The power station will utilize two Combustion Engineering pressurized water reactors with cores similar to the design provided for the Maine Yankee reactor, and reactor cooling systems similar to that of the Palisades reactor. Each reactor is designed to produce 2440 MWt with a stretch power of 2700 MWt. The design of the containment buildings is similar to that for the Turkey Point and Oconee Stations, and the emergency core cooling system will be the same as that developed for the Palisades and Fort Calhoun reactors.

Adequate provision will be made for protection of the plant against earthquakes, hurricanes, wave run-up, and tornadoes; studies relating to tornado protection of the fuel storage pool are continuing. Location and design of cooling water intake and outfall structures will be determined after the hydrological model study now underway is completed. Emergency plans for the evacuation of the peninsula area south of the plant are being established.

A meteorological program is in progress to attempt to justify the use of parameters less restrictive than those in TID-14844. However, the applicant has agreed to increase the capacity of the charcoal filter systems in the containments if the measured meteorological parameters do not justify his proposed values. He has also agreed to install a ventilation filter system to cope with the consequences of damaging a fuel element in the fuel storage pool.

The applicant has discussed his assumptions on the question of post-accident production of hydrogen in the containment atmosphere due to radiolysis and metal-water reactions. The Committee believes that further consideration should be given to providing means for coping with additional hydrogen which might be generated by Zircaloy-water reactions in a postulated loss-of-coolant accident if the effectiveness of the emergency core cooling system should be less than that predicted by the applicant. This matter should be resolved between the applicant and the AEC Regulatory Staff.

The main coolant-pump flywheels represent a potential source of missiles within the containment, and the applicant has described measures to be taken to minimize the possibility of flywheel failure. Additional steps may be warranted to assure the integrity of the flywheel assembly; the Committee recommends that details concerning adequacy of design, material characteristics, quality assurance, and in-service inspection requirements be resolved between the applicant and the AEC Regulatory Staff.

The Advisory Committee on Reactor Safeguards believes that the above items can be resolved during construction, and that, if due consideration is given to these items, as well as to those previously emphasized by the Committee for all large water-cooled reactors, the nuclear plant proposed for the Calvert Cliffs site can be constructed with reasonable assurance that it can be operated without undue risk to the health and safety of the public.

Sincerely yours,

/s/

Stephen H. Hanauer
Chairman

References attached.

References - Calvert Cliffs Nuclear Power Plant, Units 1 and 2

1. Letter from Baltimore Gas and Electric Company, dated January 25, 1968; License Application; Volumes I and II of Preliminary Safety Analysis Report
2. Letter from Baltimore Gas and Electric Company, dated April 17, 1968; Amendment No. 1 to License Application
3. Letter from Baltimore Gas and Electric Company, dated April 23, 1968; Errata to Amendment No. 1 to License Application
4. Letter from Baltimore Gas and Electric Company, dated June 28, 1968; Amendment No. 2 to License Application
5. Letter from Baltimore Gas and Electric Company, dated September 24, 1968; Amendment No. 3 to License Application
6. Letter from Baltimore Gas and Electric Company, dated October 4, 1968; Request for Exemption from regulations to permit start of certain construction work prior to issuance of construction permit
7. Letter from Baltimore Gas and Electric Company, dated November 7, 1968; Amendment No. 4 to License Application, including Supplement 1
8. Letter from Baltimore Gas and Electric Company, dated November 18, 1968; Drawings SK-C-164, SK-C-165 and SK-C-166 related to request for exemption from regulations to permit start of certain construction work
9. Letter from Baltimore Gas and Electric Company, dated November 27, 1968; Additional Information regarding request for exemption from regulations to permit start of certain construction work prior to issuance of construction permit
10. Letter from Baltimore Gas and Electric Company, dated December 19, 1968; Amendment No. 5 to License Application
11. Letter from Baltimore Gas and Electric Company, dated January 13, 1969; Amendment No. 6 to License Application
12. Letter from Baltimore Gas and Electric Company, dated February 3, 1969; Amendment No. 7 to License Application
13. Letter from Baltimore Gas and Electric Company, dated February 7, 1969; Supplementary Information to PSAR on ECCS and Loss-of-Coolant Analysis
14. Letter from Baltimore Gas and Electric Company, dated February 14, 1969; Amendment No. 8 to License Application

Honorable Glenn T. Seaborg

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References - Calvert Cliffs (cont'd)

15. Letter from Baltimore Gas and Electric Company, dated February 19, 1969;
Amendment No. 9 to License Application