

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

January 14, 1974

Honorable Dixy Lee Ray
Chairman
U. S. Atomic Energy Commission
Washington, D. C. 20545

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

Dear Dr. Ray:

During its 165th meeting, January 10-12, 1974, the Advisory Committee on Reactor Safeguards completed its review of the application of the Baltimore Gas and Electric Company for authorization to operate the Calvert Cliffs Nuclear Power Plant, Units 1 and 2 at power levels up to 2560 MW(t) each. The review has been conducted in two parts. A report on the first part was provided to the Commission on June 12, 1973. The second, concluding part of the review is reported on herein. During this part of the review the project was considered at a Subcommittee meeting held in Washington, D. C., on December 19, 1973, as well as at the Committee's 165th meeting. In this review, the Committee had the benefit of discussion 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.

Each unit of the Calvert Cliffs Nuclear Power Plant employs a Combustion Engineering pressurized water reactor with core design similar to that of the Maine Yankee plant and reactor cooling system and emergency core cooling systems similar to those for the Palisades plant. The design of the containment buildings is similar to that of the Turkey Point and Oconee stations. Completion of construction of Unit 2 is estimated to be approximately one year behind that of Unit 1.

In its letter of June 12, 1973, the Committee indicated that the applicant's analyses of fuel densification effects were based on models not all of which had been accepted by the Regulatory Staff (in particular, the model for treatment of gap conductance), and that, in consequence, neither the Staff nor the Committee had completed its evaluation of the permissible power level or core operating conditions. The applicant has

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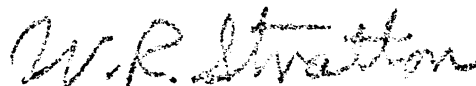
subsequently submitted new analyses employing revised models acceptable to the Staff, and has proposed new operating limits on linear heat generation rates (LHGRs) and core peaking factors, as well as improved procedures for surveillance of core power distribution. Included is a restriction on peak LHGR as a function of local fuel burnup; it varies from 14.9 kw/ft at the beginning of life to a maximum of 17.5 kw/ft at high burnup. The analyses of loss of coolant accidents submitted, and the proposed LHGR limits resulting from them, are based on the Interim Acceptance Criteria. The new proposed operating limits and procedures have been evaluated by the Regulatory Staff for the first fuel cycle only and found satisfactory. The Committee concurs. In respect to Staff evaluation for future fuel cycles, the Committee wishes to be kept informed.

Re-evaluation of operating limits will be necessary as a result of the recently promulgated Acceptance Criteria for Emergency Core Cooling Systems. The Committee wishes to be kept informed.

The Regulatory Staff has been investigating on a generic basis the problems associated with a potential reactor coolant pump overspeed in the unlikely event of a particular type of rupture at certain locations in a main coolant pipe. Some additional protective measures may be warranted and this matter should be resolved to the satisfaction of the Regulatory Staff. The Committee wishes to be kept informed.

The Advisory Committee on Reactor Safeguards believes that, if due regard is given to the items mentioned above and those of the Committee's letter of June 12, 1973, and subject to satisfactory completion of construction and preoperational testing, there is reasonable assurance that Calvert Cliffs Nuclear Power Plant, Units 1 and 2 can be operated at power levels up to 2560 MW(t) without undue risk to the health and safety of the public.

Sincerely yours,



W. R. Stratton
Chairman

References

List Attached

References

1. Baltimore Gas and Electric Company (BG&E) Final Safety Analysis Report for Calvert Cliffs Nuclear Power Plant, Vols. I through V
2. Amendments 12 through 42 to BG&E License Application for Calvert Cliffs Nuclear Power Plant
3. BG&E Security Plan for Calvert Cliffs (Proprietary), dated 5/2/72 with three revisions, dated 8/3/72, 9/25/72, and 7/3/73, respectively
4. Directorate of Licensing Safety Evaluation, dated 8/28/72 with Supplements 1 and 2, dated 5/3/73 and 12/4/73, respectively
5. ACRS Interim Report on the Calvert Cliffs Nuclear Power Plant to Chairman, U. S. AEC, dated June 12, 1973
6. BG&E letter, dated 7/26/73, describing proposed design modifications to the reactor protection system
7. BG&E letter, dated 8/7/73, discussing overflow lines from tanks that will contain radioactive liquids
8. BG&E letter, dated 8/22/73, describing irradiation experiment