

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

June 11, 1974

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

Subject: REPORT ON THE MILLSTONE NUCLEAR POWER STATION, UNIT NO. 2

Dear Dr. Ray:

During its 170th meeting, June 6-8, 1974, the Advisory Committee on Reactor Safeguards completed its review of the application by the Connecticut Light and Power Company, the Hartford Electric Light Company, the Western Massachusetts Electric Company, and the Northeast Nuclear Energy Company (formerly the Millstone Point Company) for authorization to operate Millstone Nuclear Power Station, Unit No. 2 at power levels up to 2570 MW(t). The application was previously considered at a Subcommittee meeting on May 22, 1974. A tour of the facility was made by Committee members on January 26, 1974. During its review, the Committee had the benefit of discussions with representatives of the applicants, Combustion Engineering Corporation, Bechtel Corporation, and members of the AEC Regulatory Staff, and their consultants. The Committee also had the benefit of the documents listed below. The Committee reported on the application for construction of Millstone Unit No. 2 on May 15, 1970.

The Millstone site is located on the north shore of Long Island Sound about 40 miles southeast of Hartford and 3.2 miles southwest of New London, Connecticut, the nearest population center (estimated 1970 population, 31,360). The exclusion radius of the site is 0.36 miles and the low population zone radius is 2.4 miles.

When completed, the Millstone Station will be comprised of three nuclear power plants. Unit No. 1 is a 2011 MW(t) General Electric boiling water reactor plant. The Committee reported on the application for authorization to operate this unit on January 15, 1970 and June 16, 1970. Unit No. 3 is to be a 3411 MW(t) Westinghouse pressurized water reactor plant. The Committee reported on the application for construction of this unit on April 16, 1974.

Unit No. 2 uses a Combustion Engineering pressurized water reactor similar in design to Calvert Cliffs Units 1 and 2. The Committee reported on the operating license application for the latter two units on January 14, 1974.

The Millstone Unit No. 2 reactor is located within a steel lined, prestressed concrete containment and the containment, in turn, is enclosed by a steel framed outer building. In the event of an accident signal, the space between the containment and outer building is to be maintained slightly below atmospheric pressure by continuous evacuation of gas inleakage. The evacuated gas will be processed through an air cleaning system prior to venting through a tall stack common to all three units.

The applicants have agreed to limit the peak linear heat generation rate to 17.0 kw/ft for operation during the first fuel cycle. Limits for operations during subsequent fuel cycles are to be established later. The initial limitation of peak linear heat generation rate has been calculated by the applicants on the basis of the Interim Acceptance Criteria and Combustion Engineering evaluation models, incorporating the effects of fuel densification. Initially, maps of core power distribution are to be developed at several power levels based upon readings of incore detectors, and these maps are to be compared with simultaneous readings of excore detectors. After sufficient experience is gained, operations will be based on use of the excore detectors only, with incore mapping done monthly for verification. These proposed operating limits and procedures for control of peak linear heat generation rate during the first fuel cycle have been evaluated by the Regulatory Staff and found satisfactory. The Committee concurs.

The operating limits of Unit No. 2 must be reevaluated in accordance with the recently promulgated Acceptance Criteria for Emergency Core Cooling, 10 CFR Part 50.46. The Committee wishes to be informed of the results of this reevaluation.

The Committee recommends that the Technical Specifications for Millstone Unit No. 2 specify heatup and cooldown pressure-temperature limits that can be shown to be as conservative as practical with respect to 10 CFR Part 50, Appendix G.

The Committee believes that the applicants and the Regulatory Staff should review in greater depth possible sources of debris which might arise in the unlikely event of a LOCA and enter pump suction lines and disable components such as the spray nozzles. The adequacy of the sump screens to hold back, without loss of function, such debris should be determined.

June 11, 1974

Inservice inspection of the reactor coolant system is to be performed in conformance with Section XI of the ASME Boiler and Pressure Vessel Code, to the extent permitted by the existing design. The Committee believes that appropriate inservice inspection of the outer shell of the secondary side of the steam generators should be utilized to assure continuing integrity. This matter should be resolved in a manner satisfactory to the Regulatory Staff.

The Committee believes it is essential that plant personnel be provided with those instruments, indicators, and measurements that will define clearly the nature and course of an accident so that offsite emergency plans can be initiated at a level and on a time scale consistent with the severity, or potential severity, of an accident.

Other generic problems relating to large water reactors identified by the Regulatory Staff and the ACRS have been discussed in the Committee's report dated February 13, 1974. These problems should be dealt with appropriately by the Regulatory Staff and the applicant.

The Advisory Committee on Reactor Safeguards believes that, if due regard is given to the items mentioned above, and subject to satisfactory completion of construction and pre-operational testing, there is reasonable assurance that the Millstone Nuclear Power Station, Unit No. 2 can be operated at power levels up to 2570 MW(t) without undue risk to the health and safety of the public.

Sincerely yours,



W. R. Stratton
Chairman

References

Listed on Page 4

References

1. The Millstone Point Company* letter dated August 10, 1972, Submitting application for operating license for Millstone Nuclear Power Station, Unit No. 2, and Amendment 13, Final Safety Analysis Report (FSAR), Volumes I, II, and III.
2. Amendments 14-20 and 22-31, consisting of revised and additional pages and figures of the FSAR.
3. The Millstone Point Company letter dated January 3, 1973, regarding the effects of fuel densification.
4. The Millstone Point Company letter dated December 31, 1973, regarding anticipated transients without scram.
5. The Millstone Point Company letter dated January 15, 1974, regarding flood protection and shoreline stability.
6. The Millstone Point Company letter dated January 30, 1974, regarding hydraulic shock suppressors.
7. The Millstone Point Company letter dated February 27, 1974 regarding quality assurance program.
8. The Millstone Point Company letter dated March 28, 1974, regarding pre-operational testing of emergency core cooling systems.
9. The Millstone Point Company letter dated April 29, 1974, regarding resolution of items.
10. Directorate of Licensing letter dated May 10, 1974, forwarding the Safety Evaluation of the Millstone Nuclear Power Station, Unit No. 2.

* The Millstone Point Company name was changed to Northeast Nuclear Energy Company (letter dated May 8, 1974).