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

June 18, 1971

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

Subject: REPORT ON OYSTER CREEK NUCLEAR POWER PLANT NO. 1

Dear Dr. Seaborg:

During its 134th meeting, June 10-12, 1971, the Advisory Committee on Reactor Safeguards reviewed the application by Jersey Central Power and Light Company for a modification to the license to operate the Oyster Creek Nuclear Power Plant Unit No. 1 at increased power levels up to 1930 MW(t). The operation of this plant was the subject of a report to you dated December 12, 1968, and an increase in power from 1600 to 1690 MW(t) was discussed in a letter to you dated November 17, 1970. The current increase in power was considered during a Subcommittee meeting at the site on May 26, 1971. The Committee had the benefit of discussions with representatives and consultants of the Jersey Central Power and Light Company, the General Electric Company, and the AEC Regulatory Staff. The Committee also had the benefit of the documents listed.

The proposed increase in maximum power is based on favorable operating experience, and on the application of the heat transfer correlation currently in use to evaluate core thermal-hydraulic performance in boiling water reactors.

A fifth relief valve will be added to the primary coolant system to prevent opening of the safety valves in the event of a severe pressure transient. This additional pressure relief is required only for power levels greater than 1865 MW(t), and the applicant proposes to install the valve before exceeding this value. The installation and testing of this valve should be completed to the satisfaction of the Regulatory Staff.

Performance of the emergency core spray cooling system has been re-evaluated for 1930 MW(t) operation. The core spray system is acceptable for the proposed higher power operation in view of results from the Commission's FLECHT program, experiments and analyses by the applicant and

his contractors, and information developed by the Regulatory Staff in recent studies of emergency core cooling systems (ECCS).

Off-site doses calculated for design basis accidents have been reexamined for 1930 MW(t) operation. The applicant proposes to reduce the allowable containment leak rate from 1.25 percent per day to 1.0 percent per day and to reduce the allowable primary coolant activity limit from 20 μCi/ml to 8 μCi/ml. With these provisions, the calculated doses based on the higher power level are no higher than those calculated previously for the current power level.

The applicant has examined methods for the control of the buildup of hydrogen in the containment which might follow in the unlikely event of a loss-of-coolant accident. A submittal is to be made which will describe the proposed approach, necessary hardware, procedures and calculational assumptions. The Committee wishes to be kept informed of the resolution of this matter.

Studies by the applicant have indicated that integrity of the spent fuel pool may not be maintained if a fuel cask is dropped into the pool. Some corrective measures have been identified, and the applicant stated that appropriate modifications will be made. The Regulatory Staff should follow this matter and assure implementation on an appropriate time scale.

The applicant has developed improved plans for in-service inspection of the main steam lines both inside and outside of containment. The Committee re-emphasizes its belief that continued attention be given to possible improvements in access to the reactor pressure vessel surfaces for augmentation of in-service inspection. The Committee recommends that inspection plans be implemented to the satisfaction of the Regulatory Staff.

The applicant has installed an atmospheric radioactivity monitoring system for leak detection in the containment drywell. The Committee recommends continued use and testing of this system and urges the applicant to search for means to improve leak detection sensitivity.

The applicant has proposed a testing procedure for the instrument lines that penetrate the containment. Further analyses of the effect of an instrument line failure on the integrity of the secondary building and of the off-site doses are being made. These studies will be reviewed by the Regulatory Staff.

The Committee feels that as means become available on a practical basis to provide information concerning the possibility of excessive vibration, structural damage, or loose parts within the reactor vessel, consideration should be given to their use in the Oyster Creek Plant.

The applicant is continuing to study further means of preventing common mode failures from negating reactor scram action, and design features to make tolerable the consequences of failure to scram during anticipated transients. The Committee wishes to be kept informed of the resolution of this matter.

The Advisory Committee on Reactor Safeguards believes that, if due regard is given to the items mentioned above and in its previous reports, there is reasonable assurance that the Oyster Creek Nuclear Power Plant can be operated at a power as high as 1930 MW(t) without undue risk to the health and safety of the public.

Sincerely yours,

Spencer H. Bush
Chairman

References

1. Amendment No. 65 to the License Application, dated December 31, 1970
2. Semi-Annual Report No. 3 (July 1, 1970 - December 31, 1970)
3. Supplement No. 1 to Amendment No. 65, dated January 26, 1971
4. Supplement No. 2 to Amendment No. 65, dated June 4, 1971