UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

July 20, 1984

Docket No. 50-219
LS05-84-07-015

Mr. P. B. Fiedler
Vice President & Director
Oyster Creek Nuclear Generating Station
Post Office Box 388
Forked River, New Jersey 08731

Dear Mr. Fiedler:

SUBJECT: CORE SPRAY EFFECTIVENESS IN A STEAM ENVIRONMENT

Re: Oyster Creek Nuclear Generating Station

The staff has completed its review of your submittal regarding the effectiveness of core spray in a steam environment. Our Safety Evaluation (Proprietary) is Enclosure 1. The major conclusions and findings of the evaluation are summarized in Enclosure 2. One issue remains unresolved which relates to the modifications made to the Oyster Creek small break evaluation model, and that is being reviewed as part of the Oyster Creek core reload application presently before the Commission.

During the course of our review we have noted that the Bases section of the Oyster Creek Technical Specification (TS) on operability of the core spray system (TS 3.4) makes reference to a required system flow rate assumed in the subject analysis regarding core spray effectiveness. The Technical Specification Bases as presently written reflect the original Core Spray system design requirement that the system provide 3400 gpm at a vessel pressure of less than 125 psia. Your current analysis takes credit for the fact that during a large LOCA the vessel will depressurize to a pressure below 30 psia, against which the core spray system will deliver a higher flow rate (i.e., 4690 gpm). The surveillance test procedure for core spray operability as presently written verifies that core spray pump performance characteristics over the full range of pressures and flow rates have not degraded. This range includes both pressure vs flow points (i.e., 125 psia vs 3400 gpm and 30 psia vs 4690 gpm). The surveillance test procedure properly ensures that the system will provide the required flow rate. A change in the procedure is not needed. However, we believe that the Technical Specification Bases as presently written are ambiguous, inaccurate and misleading. Therefore, you are requested to provide clarification of this issue within 90 days of receipt of this letter.

Enclosure 1, the staff Proprietary Safety Evaluation, will be withheld from public disclosure pursuant to 10 CFR 2.790(b)(5) and Section 103(b) of the Atomic Energy Act of 1954, as amended.

The reporting and/or recordkeeping requirements contained in this letter affect fewer than ten respondents; therefore, OMB clearance is not required under P.L. 96-511.

Sincerely,

Original signed by

Walter A. Paulson, Acting Chief
Operating Reactors Branch #5
Division of Licensing

Enclosures:
1. Proprietary Safety Evaluation (being withheld from public disclosure)
2. Summarized Evaluation

cc w/enclosure 2:
See next page

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EVALUATION FINDINGS SUMMARY

1. The minimum bundle flow rate predicted in the GPU analysis was arrived at using the General Electric design methodology for determining core spray distribution. The staff has reviewed the GPU analysis and find it acceptable.

2. In order to demonstrate acceptable consequences for certain small break loss-of-coolant accident scenarios GPU has reanalyzed the small break cases with a modified evaluation methodology. This was done because of uncertainties in core spray distribution at elevated reactor system pressure. This issue is currently being reviewed by the staff as part of the Oyster Creek reload core application presently before the Commission.

3. GPU has determined the minimum required bundle spray flow rate needed to achieve Appendix K heat transfer coefficients with a method supported by spray cooling test results. The staff accepts this determination because it is well supported by test data.

4. The staff has reviewed the uncertainty factor applied in the determination of minimum bundle spray flow rate and finds it acceptable based on comparisons of test results with calculated results.