8/26/82

Central Files

Mr. G. F. Owsley, Manager
Reload Fuel Licensing
Exxon Nuclear Company, Inc.
2101 Horn Rapids Road
P. O. Box 130
Richland, Washington 99352

Dear Mr. Owsley:

Subject: Acceptance for Referencing of Topical Report XN-NF-81-21(P) Revision 1

The Nuclear Regulatory Commission (NRC) has completed its review of the Exxon Nuclear Company, Inc. (ENC) Licensing Topical Report XN-NF-81-21(P) Revision 1 entitled "Generic Mechanical Design for Exxon Nuclear Jet Pump BWR Reload Fuel" Revision 1 dated January 1982. This report provides a design description and a summary of the design criteria, technical bases, supporting analyses, and test results for the Exxon Nuclear Company (ENC) Jet Pump Boiling Water Reactor (JP-BWR) reload fuel. Design drawings are included in Appendix A of the report. Our safety evaluation (proprietary and non-proprietary versions) of the licensing topical report is enclosed.

Based on our review, in accordance with Section 4.2 of the Standard Review Plan, of the licensing topical report XN-NF-81-21(P), we conclude that, although most of the objectives of the fuel system safety review have been met, the following issues must be addressed by the licensee proposing to use this fuel.

1. The licensee must confirm that the design power profile shown in Fig. 5.10 of XN-NF-81-21 bounds the power limits for the application in question.

2. Unless RODEX2, XN-NF-81-58, (presently under NRC review) is approved without modification, the licensee must confirm or redo the following analyses, which were reviewed on the basis of RODEX2 results.

   a. Design Strain, SER Section 5.1(b).
   b. External Corrosion, SER Section 5.1(e).
   c. Rod Pressure, SER Section 5.1(h)
   d. Overheating of Fuel Pellets, SER Section 5.d(d)
   e. Pellet Cladding Interaction, SER Section 5.2(f)

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3. Until such time that XN-NF-82-07 is approved and incorporated in the ENC ECCS evaluation model, a supplemental calculation using the NUREG-0630 cladding models must be provided in a plant-specific basis each time a new ECCS analysis is performed (see SER Section 5.2(g) and 5.3(c)).

4. The licensee must make sure that the fuel performance code that is used to initialize Chapter 15 accident analyses has current NRC approval (see SER Section 5.3(a)).

With the above provisions, the staff concludes that the JP-BWR fuel system has been designed such that (a) it will not be damaged as a result of normal operation and anticipated operational occurrences, (b) fuel damage during postulated accidents would not be severe enough to prevent control rod insertion when it is required, and (c) core coolability will always be maintained even after postulated accidents. We further conclude that Exxon has described methods of adequately predicting fuel rod failures during postulated accidents so that radioactivity releases are not underestimated.

As the result of our review, we conclude that the Exxon Nuclear Company, Inc., licensing topical report number XN-NF-81-21(P) Revision 1 entitled "Generic Mechanical Design for Exxon Nuclear Jet Pump BWR Reload Fuel" Revision 1 dated January 1982 is acceptable for referencing in fuel reload licensing applications to the extent specified and under the limitations stipulated in the topical report and the safety evaluation, enclosed herewith, specifically with respect to the conditions relative to the lack of acceptance of Exxon licensing topical reports XN-NF-81-58(P) and XN-NF-82-07. When the subject topical report is referenced, the reference must include both the proprietary and nonproprietary versions.

We do not intend to repeat our review of this topical report when it appears as a reference in a particular license application, except to assure that the material presented is applicable to the specific plant involved. Our acceptance applies only to the features described in the topical report.

In accordance with established procedures (NUREG-0390), it is requested that Exxon Nuclear Company, Inc., publish accepted proprietary and nonproprietary versions of the topical report within three months of receipt of this letter. The accepted versions must include this letter and the enclosed appropriate evaluation following the title page. The report identification symbols must have a -A suffix.

Should Nuclear Regulatory Commission criteria or regulations change, such that our conclusions as to the acceptability of the report are invalidated, Exxon Nuclear Company Inc., and/or the applicants referencing the topical report will be expected to revise and resubmit their respective documentation or submit justification for the continued effective applicability of the topical report without revision of their respective documentation.

Sincerely,

/S/

Harold Bernard, Acting Branch Chief
Standardization & Special
Projects Branch
Division of Licensing

Enclosure:
Topical Report Evaluations
(Proprietary & nonproprietary)

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