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

DOCKET NO.: 50-29 DATE: June 30, 1975

LICENSEE: Yankee Atomic Electric Company

FACILITY: Yankee-Rowe

SUMMARY OF MEETING HELD ON JUNE 24, 1975, CONCERNING ECCS ANALYSIS FOR THE RELOAD CORE XII USING THE EXXON NUCLEAR COMPANY IMPLEMENTATION OF THE WREM CODES

On June 24, 1975, we met in Bethesda, Md. with representatives of Yankee Atomic Electric Company (YAEC), Exxon Nuclear Corporation (ENC), Energy Incorporated (EI), and Intermountain Technologies, Inc. (ITI) to discuss the use of the WREM model by Exxon Nuclear Corporation for the ECCS analysis for the Yankee-Rowe (Y-R) reload Core XII.

A list of attendees is enclosed.

Significant points discussed during the meeting are summarized below.

YAEC's present schedule is to shut down Yankee-Rowe on October 18, 1975, for reloading with Core XII, and to start up the reactor early in December 1975. Of the total of 76 fuel assemblies in Core XII, 36 will be recycled assemblies originally fabricated by Gulf United, the remaining 40 new fuel assemblies will be fabricated by the Exxon Nuclear Company. YAEC confirmed that the Core XII reload submittal (core physics, thermal and hydraulic evaluation and accident analysis) except for the ECCS analysis will be made during the first week in July 1975. With respect to the ECCS analysis for Core XII YAEC will submit on September 1, 1975 (at least 90 days before startup) an analysis of the worst break, presenting the elements of the models that will be used and the results of this analysis, so that we can start early with the review process. The ECCS analysis for the reload Core XII will be done by the Exxon Corporation using the Water Reactor Evaluation Model (WREM) as adapted to Y-R and modified to meet the criteria of Appendix K to 10 CFR Part 50.

Exxon Nuclear Company is currently developing a generic ECCS evaluation model for Pressurized Water Reactors based on WREM. During this meeting Exxon representatives described the adjustments for the application of the Exxon ECCS evaluation program to account for the unique features of the Y-R plant. Y-R is a 4-loop PWR. It has cruciform control rods. The one accumulator in the ECCS is located outside the containment sphere. The important features of the ECCS analysis program specific to Y-R Core XII were described by Exxon Nuclear. They include the following:

The ECCS calculations will be performed using the basic WREM code package as modified by ENC and their consultants to meet all requirements of Appendix K to 10 CFR Part 50. A similar evaluation program for the H. B. Robinson plant was presented to the staff during a meeting on June 23, 1975. (See Enclosure 3 of the minutes of that meeting). Points with

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unique applicability to use of that model for the Y-R core were discussed in this June 24 meeting and are summarized below.

- Y-R plans to reference the H. B. Robinson (HBR) break nodalization sensitivity study if parameters are in the same approximate range. If not, the sensitivity study will be performed for Y-R. YAEC plans to perform a time step sensitivity study, and will perform a burn-up sensitivity study (see June 23 meeting minutes) if necessary. Other sensitivity studies will be referenced to studies previously performed with WREM. We believe the June 23 meeting minute's comments on referencing previous WREM sensitivity studies are equally applicable to Y-R (i.e., justification must be provided, but in our opinion such justification is possible).

- YAEC plans to perform large break calculations with Moody multiplies of 1.0, 0.6, and 0.4 (the latter approximately equivalent to a 1.0 ft^2 break area) plus analyses of split breaks with 1.0 ft^2 and 0.5 ft^2 areas. No small break analyses are planned. YAEC plans to reference previous analyses which have shown that small breaks are not limiting in the Y-R reactor. Previous analyses will also be referenced for other break analyses (hot leg, pump suction, big split) which have shown those postulated breaks to be non-limiting.

  We pointed out that we agree technically with the argument that a shift to the WREM model won't change the worst break location and size. However, we emphasized that YAEC must make the argument why this is so. That argument must contain the technical reasons why the Y-R reanalysis package complies with the requirements of our Reactor Systems Branch position regarding analysis requirements. These arguments and justifications should be submitted as soon as possible to us to make an early determination regarding acceptability of the proposal.

- Any model proposed for FLECHT data use must be shown to properly predict the FLECHT data when FLECHT test geometry is used in the model.

- Data are needed for small rods. Application of 15 x 15 FLECHT data to smaller rods is allowable with a 0.8 multiplication factor in conjunction with a commitment to obtain small rod data within a reasonable period of time.

- If a radiation heat transfer model is used, enough geometries will have to be calculated to insure that the maximum temperature pin is calculated. HUXY is appropriate, if it is demonstrated that strain is occurring in such a manner as to give conservative view factors.

- YAEC plans to reference the YAEC-1071 report to justify use of a 0.87 gamma smearing term.

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- Y-R cannot tolerate certain passive fluid system failures and still meet the requirements of Appendix K. However, YAEC believes such criteria are not required to be met for Y-R.

- We inquired about YAEC's justification for use of the liquid carryout rate fraction data obtained from 12 foot test assemblies for 91 inch assemblies in Y-R.

Alfred Burger

Alfred Burger, Project Manager
Operating Reactors Branch #1
Division of Reactor Licensing

Enclosure:
List of Attendees

LIST OF ATTENDEES

Yankee Atomic Electric Company

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Exxon Nuclear Corporation

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Nuclear Regulatory Commission

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Docket File
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MEETING NOTICE DISTRIBUTION

Docket
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