Consumers Power Company

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September 1, 1982

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Operating Reactors Branch No 5
Nuclear Reactor Regulation
US Nuclear Regulatory Commission
Washington, DC 20555

DOCKET 50-155 - LICENSE DPR-6 -
BIG ROCK POINT PLANT - SEP TOPIC
III-6, SEISMIC DESIGN CONSIDERATIONS

At a meeting with members of your staff on August 24, 1982 in which the Systematic Evaluation Program topic on seismic design considerations for the Big Rock Point Plant was discussed, Consumers Power Company committed to provide a description of the criteria it has selected for seismic analysis of mechanical equipment. This letter and the enclosed report entitled "Criteria for Seismic Analysis of Safety-Related Mechanical Equipment (SEP Topic III-6)" satisfy that commitment.

The proposed criteria are based on an earlier set of criteria developed by Consumers Power Company and discussed during a staff visit to Big Rock Point on March 4 and 5, 1982. The criteria have been updated to reference the 1980 edition of the ASME Code with winter 1980 addenda as the basic document governing piping analysis. Included as Appendix A to the criteria report is an analysis guideline which defines what Consumers Power Company considers to be acceptable analytical methods for seismic analysis under SEP Topic III-6, some differences between this guideline and the staff's guideline as described in NRC letter dated July 26, 1982 entitled "Staff Guidelines for Seismic Evaluation Criteria for the SEP Group II Plants" are noted below. These differences are:

a. A 1.8 S_h limit will be applied to pipe stress at the connections to active components. All other locations will be limited to 2.4 S_h. Consumers Power Company believes that the 2.4 S_h limit will restrict pipe deformations to levels that will not impair the ability of the needed systems to perform their functions.

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b. The effects of seismically induced anchor displacements will not be included in faulted condition evaluation of piping and supports. The use of anchor movements for level D conditions is not a requirement of the ASME Code. The Code (NF-3231.1 (c)) specifically says that differential motion effects need not be considered for level D stress limits for Class 1 linear type supports. For plate and shell supports the Code refers to Appendix F which prescribes limits only for primary stresses (F 1310 (c)).

c. Thermal and seismic anchor movement effects will not be included in calculating nozzle loads on mechanical equipment. Again, this is not a requirement of the ASME Code for Class 2 evaluations and would be a change to the philosophy of not considering secondary stresses for the faulted condition.

d. The guidelines of special limitation Number 2 of the NRC's July 26, 1982 letter relative to brittle failure have not been included in the criteria per se. The majority of the piping, components, and supports are made of ductile materials. Where non-ductile materials such as cast iron do exist, they will be handled on a case by case basis with consideration given to the concerns mentioned in special limitation Number 2.

In summary, Consumers Power Company proposes to use a current edition of the ASME Code for seismic analysis of Big Rock Point Plant. We believe that these criteria compare favorable with those of newer plants and meet the intent of the Systematic Evaluation Program.

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Attachment - 12 pages