



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

OCT 3 1978

Docket Nos. 50-369
and 50-370

Mr. William O. Parker, Jr.
Vice President, Steam Production
Duke Power Company
P. O. Box 2178
422 South Church Street
Charlotte, North Carolina 28242

Dear Mr. Parker:

SUBJECT: CRITERIA FOR PIPING MODELLING TECHNIQUE - STRUCTURAL
OVERLAPPING (MC GUIRE NUCLEAR STATION, UNITS 1 & 2)

We have completed our review of the methods which you use in modelling piping systems for static and dynamic system analysis for the Mc Guire Nuclear Station. We have concluded that this technique (structural overlapping) may be used in an acceptable fashion provided that the following considerations are satisfied:

1. Since the validity of the method is improved as the overlap region takes on the characteristics of a rigid section*, a section of a piping system shall be defined as an overlap region if the following requirements are satisfied:
 - a. The section contains a minimum of four (4) restraints in each of three perpendicular directions.
 - b. The restraints in the section are so spaced that the pipe span between any two restraints, taken as simply supported beams, have a fundamental natural frequency (bending and torsion) not less than 33 Hz.
 - c. In lieu of the criterion in 1b, a dynamic analysis of the overlap region should be made with pinned boundaries extended beyond the overlap region either to the next actual support or to a span length equal to the largest span length within the region. The fundamental frequency determined from this analysis should be greater than 33 Hz.

*A section may be considered rigid when subjected to seismic excitation if its natural frequencies are greater than 33 Hz.

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Mr. William O. Parker, Jr.

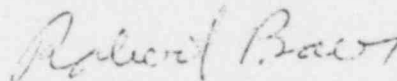
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2. If a subsystem natural frequency falls in close proximity to a response spectrum peak, this peak value should be applied in the stress evaluation.

Although the criteria used for Mc Guire is acceptable and may be continued to be applied on this plant; for all other Duke Power plants undergoing licensing review we shall require a commitment that whenever this technique is employed in the future the requirements listed above be adopted and documented in the appropriate safety analysis report.

Sincerely,



Robert Baer, Chief
Light Water Reactors Branch No. 2
Division of Project Management

cc: See next page

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