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DESCRIPTION:
Letter Re. our letter of 10-17-75....
Letter furnishing additional information on the reactor pressure Supports System.....

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ENCLOSURES:

PLANT NAME: Turkey Point # 3 & 4

FOR ACTION/INFORMATION SAB 12-10-75

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FPL
FLORIDA POWER & LIGHT COMPANY

December 4, 1975
L-75-574

Director of Nuclear Reactor Regulation
ATTN: Mr. George Lear, Chief
Operating Reactors Branch #3
Division of Reactor Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Lear:

Re: Turkey Point Units 3 and 4,
Reactor Pressure Supports

Pursuant to your letter of October 17, 1975, we have reviewed the design bases for the Turkey Point 3 and 4 reactor vessel support system and feel that the design is appropriately conservative. The bases for this conclusion are provided infra; the design loads considered are provided on page 5.1.8.2 of the FSAR (March 16, 1970) and the roller system which supports the reactor vessel is illustrated by FSAR figure 5.1-20.

During the design of the Turkey Point units, large instantaneous severances of the RCS piping were postulated for various reasons, e.g., to assess the capability of the containment structure and to assess the efficacy of emergency core cooling systems. The likelihood of occurrence of these postulated (for design evaluation) breaks is extremely remote even though those studies attempting to quantify the probability of pipe ruptures anywhere in the RCS have utilized a data base that was not restricted solely to nuclear power plant piping and have included data from industries which utilize lower quality standards than those employed in nuclear plants. It must also be noted that reactor coolant piping is very large diameter piping and is essentially a pressure vessel. Accordingly, the likelihood of a failure anywhere in the RCS is less than that reported for piping and likely approaches that associated with pressure vessel failure (less than 10^{-6} to 10^{-7} per year).

The small likelihood of an RCS piping failure nonwithstanding, large pipe ruptures were considered in the design of the Turkey Point 3 and 4 RCS supports. This consideration led to the inclusion of pipe rupture thrust reactions and jet impingment forces in the support system design. Elastic design methods were employed.

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The state-of-the-art has progressed to the point where the dynamics associated with postulated pipe ruptures can now be modeled and analyzed. These time-history methods have been applied on current designs, indicating that additional forces can exist during RCS depressurization. However, these forces exist for relatively short periods and the analyses conducted to date on new facilities do not suggest unacceptable consequences due to the existence of these short-lived transient forces. Westinghouse has shown that an instantaneous guillotine rupture adjacent to a cold leg nozzle constitutes the generically worst case for these effects. The likelihood of a pipe rupture at this one specific location is clearly substantially less than the likelihood of a rupture occurring at any location in the total length of piping in the System.

Thus, our review indicates that, while the precise margin in the Turkey Point 3 and 4 RCS support design when compared to the Commission's requirements for new facilities is not quantifiable, this design is acceptably conservative and that the specific RCS failure requiring consideration of the transient phenomena is extremely remote.

Yours very truly,

Robert E. Uhrig
Vice President

REU:sb

cc: Jack R. Newman, Esq.