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MURRAY R. EDELMAN

VICE PRESIDENT
NUCLEAR

June 14, 1985
PY-CEI/NRR-0266 L

Mr. B. J. Youngblood, Chief
Licensing Branch No. 1
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Perry Nuclear Power Plant
Docket Nos. 50-440; 50-441
Response to 4-24-85 Request for
Additional Technical Information on
Use of Stiff Pipe Clamps

Dear Mr. Youngblood:

This letter and the attachments provide a response to your April 24, 1985 letter which requested additional technical information on the use of stiff pipe clamps in the piping system for the Perry Nuclear Power Plant (Units 1 and 2).

We believe that this information sufficiently addresses the staff's concerns relative to the use of stiff pipe clamps in the Perry Plant Piping System. Please feel free to contact me if you should have any questions.

Very truly yours,

Murray R. Edelman
Vice President
Nuclear Group

MRE:njc

Attachments

cc. Jay Silberg, Esq.
John Stefano (2)
J. Grobe

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PDR ADOCK 05000440
A PDR

Boo!
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Items from 4-24-85 Letter to M. R. Edelman from B. J. Youngblood:

- (a) Provide the stiffness value for various sizes of stiff clamps, both with and without torques.
- (b) Specifically for stiff clamps on large bore piping (e.g., 24-inch normal pipe diameter and larger) provide a quantitative comparison of the stiffnesses associated with the stiff clamps, other support components, and the piping.
- (c) Provide the technical basis for your statement that, "lower preload torque values do not affect required stiffness of the support as assumed in piping stress analyses." Include the results of any studies, analyses, or tests performed which were used to reach this conclusion.

Response:

The information requested above is provided in attached Table 1 and explained as follows:

- (a) The stiffness values for various sizes of clamps, both with and without torques, can be found in columns 7 and 8, respectively.
- (b) The stiffnesses associated with the clamps, the snubbers, and the piping is provided for comparison in columns 5, 6, 7, and 8. The pipe stiffnesses are based on a span length, in feet, equal to the pipe nominal diameter in inches (i.e., length diameter ratio of 12).
- (c) The effect of preload torques on the clamp stiffnesses is indicated in columns 7 and 8. The effect on the overall assembly is shown in columns 9 and 10. This data supports our statement that the lower preload torque values do not affect the results of piping stress analysis.

TABLE 1
VARIOUS STIFFNESS VALUES FOR STIFF PIPE CLAMPS USED IN PERRY PLANT

1	2	3	4	5	6	7	8	9	10
Subsystem ID	Support ID	Pipe Size (inch)	Snubber Size (kips)	Pipe Stiffness (lb/in.)	Snubber Stiffness (lb/in)	Clamp Stiffness		Assembly Stiffness	
						Torqued (lb/in)	Untorqued (lb/in)	Torqued (lb/in)	Untorqued (lb/in)
1N11-G38	H284	28	100	1.09×10^5	1×10^6	11.5×10^6	4.18×10^6	9.79×10^4	9.65×10^4
1N11-G38	H285	28	100	1.09×10^5	1×10^6	11.5×10^6	4.18×10^6	9.79×10^4	9.65×10^4
1N11-G38	H286	20	100	1.08×10^5	2.4×10^6	14.0×10^6	5.17×10^6	1.02×10^5	1.01×10^5
1E21-G03	H001/H002	12	50	1.04×10^5	6×10^5	13.6×10^6	1.95×10^6	8.8×10^4	8.47×10^4
1E12-G12	H373	18	50	1.07×10^5	6×10^5	12.7×10^6	4.45×10^6	9.02×10^4	8.91×10^4

NOTES:

- (1) Column 5 pipe stiffness is based on simply supported pipe span of 12 times the nominal pipe diameter.
- (2) Only Class 1 stiff clamps are considered because support stiffness is used in piping analysis model only in Class 1 systems. Class 2 and 3 systems used deflection 0.1" deflection criterion to control the support stiffnesses.
- (3) Stiff clamps are used only with snubbers, not with struts, in Perry Class 1 systems.