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MANAGER, GENERATION ENGINEERING

May 23, 1979

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U.S. Nuclear Regulatory Commission
Region V
Suite 202, Walnut Creek Plaza
1990 N. California Boulevard
Walnut Creek, California 95696



Attention: Mr. R. H. Engelken, Director

Gentlemen:

Subject: IE Bulletin 79-07
Docket Nos. 50-361 and 50-362
San Onofre Nuclear Generating Station, Units 2 and 3

Your letter of April 14, 1979, transmits IE Bulletin 79-07, "Seismic Stress Analysis of Safety-Related Piping", and requests identification of the computer programs and methodologies utilized for the piping stress analyses.

The following responses are keyed to the question numbers in the bulletin:

1. None of the methods identified were utilized for the seismic analyses of safety related piping.
2. Based on our response to Question No. 1, this is not applicable.
3. Our A/E, Bechtel Power Corporation (BPC) and their consultants, utilized the following computer codes for the subject analyses:
 - a. ME 632 - "Seismic Analysis of Piping Systems" BPC
 - b. ME 101 - "LEAP - Linear Elastic Analysis of Pipe" BPC
 - c. SUPERPIPE - EDS Nuclear, Inc.

These programs were verified by comparison to other computer programs as follows:

ME 632	- Verified by PISOL, PIPESD, and TPIPE
ME 101	- Verified by ME 632, TPIPE, and SUPERPIPE
SUPERPIPE	- Verified by PISOL and PIPESD

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Our NSSS supplier, Combustion Engineering, states that time histories of the six components of force or moment (F_x , F_y , F_z , M_x , M_y , M_z) at various sections of the reactor coolant system main loop piping were computed separately for each of two horizontal and vertical directions of seismic excitation. The maximum codirectional components of force or moment over all time from one horizontal and vertical direction of excitation were combined by absolute summation to define the seismic loading condition at the particular piping location for one horizontal and the vertical excitations. A second seismic loading condition was also defined by repeating the absolute sum combination for the other horizontal and the vertical excitations. Each load set was compared to, and shown to be less governing than, the seismic loadings specified for design of the piping. The load combinations were calculated and verified by hand.

4. Based on our response to Question No. 1, this question is not applicable.

Should you have any questions or require further clarification, please contact me.

Very truly yours,

W P Bush

cc: U.S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Division of Reactor Operations Inspection
Washington, D.C. 20555

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