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REPLY TO:
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January 23, 1985

United States Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Office of Nuclear Reactor Regulation
Mr. Domenic B. Vassallo, Chief
Operating Reactors Branch No. 2
Division of Licensing

References: (a) License No. DPR-28 (Docket No. 50-271)
(b) Letter, VYNPC to USNRC, FVY 84-67, dated June 27, 1984

Subject: Vermont Yankee Seismic Reanalysis Program - Status and Results of Evaluation of Support Loads on Structural Members

Dear Sir:

The purpose of this letter is to provide an updated status of our Seismic Reanalysis Program (SRP) and the results of our recent evaluation of support loads on structural members. As part of the Seismic Reanalysis Program, our safety-related piping was dynamically analyzed using amplified response spectra curves generated from Regulatory Guide 1.60. As we informed you in our letter of June 27, 1984 [Reference (b)], it was expected that the SRP would produce more conservative results than those obtained from the original FSAR ground response spectra.

We have completed the pipe stress analysis and as a result have determined that additional supports would be required to accommodate the higher loads. In addition, we are currently completing the evaluation of the existing supports and have determined that modifications would also be required. We are also designing supports to the upgraded condition, consistent with the schedule outlined in Reference (b).

As part of the design process, an evaluation of support loads on structural members (embedded base plates and building structural steel) was also made. During this check, we determined that several of the structural members were overstressed to the new loads generated by the Regulatory Guide 1.60 amplified spectra. In checking further, we determined that the original loads used by the plant designer (Ebasco) were in some cases actually higher than the SRP loads. Ebasco was then asked to document how they evaluated the original pipe support loads on structural members.

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The original design of the plant was based on a pseudo-static seismic analysis of the safety-related piping to obtain pipe stresses and pipe support loads. However, piping resonance and building amplification were not initially considered, but prior to obtaining the operating license, Ebasco applied very conservative static "bump factors", the so-called "Robinson Fix" factors, to pipe support loads. Supports were modified and extra supports were added to compensate for the "Robinson Fix" loads.

In our recent review, no records could be found showing an evaluation by Ebasco of the structural members for "Robinson Fix" loads (although the "Robinson Fix" loads on pipe supports were evaluated). As a result, Vermont Yankee initiated an investigation which included a plant walkdown and a review of existing loading conditions. Three "worst" cases involving five support loads and associated structural members were chosen for detailed investigation. These supports and structural components are:

Pipe Support	Structure
RSW - H168	W10x21 Steel Beam
RSW - H167, H171, H173	W10x21 Steel Beam
RSW - H224	Embedded Plate

During several working sessions between YAEC and Ebasco engineers, it was agreed that the investigation would use the as-built conditions, the pipe operating and Safe Shutdown Earthquake reaction loads and criteria consistent with VYNP FSAR, including the "Robinson Fix" loads.

The identified building structural components were first analyzed under the effect of the "Robinson Fix" pipe support loads. Under the static application of these very conservative loads, several points of building structures associated with two of the three supports were overstressed. A further evaluation was then performed by Ebasco to determine the ability of the structural members to withstand the reaction loads determined by a dynamic piping analysis using the as-built piping and pipe support configuration and the Amplified Response Spectra of the Vermont Yankee FSAR. This evaluation found that building structural members comply with the acceptance criteria of Vermont Yankee FSAR Section 12.2.1. Vermont Yankee subsequently evaluated an additional four structural members to Regulatory Guide 1.60 loads and determined them to be adequate. Thus our evaluation, which encompassed 20% of structural beams and 25% of embedded base plates that have pipe supports attached, confirmed their structural adequacy.

Based on the results of these evaluations, we concluded that the structural members meet FSAR criteria. Moreover, as part of our Reanalysis Program, Vermont Yankee intends to continue to upgrade the piping systems and associated supports and structures to the amplified Regulatory Guide 1.60

spectra consistent with current design practices. Should you have any questions or require additional information in this matter, please contact us.

Very truly yours,

VERMONT YANKEE NUCLEAR POWER CORPORATION

Robert W Capstick

Robert W. Capstick
Licensing Engineer

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