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YANKEE ATOMIC ELECTRIC COMPANY

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B.4.2.1

WYR 79-127

October 31, 1979

United States Nuclear Regulatory Commission
Office of Inspection & Enforcement
Region 1
631 Park Avenue
King of Prussia, Pennsylvania 19406

Attention: Mr. Boyce H. Grier, Director

References: (a) License No. DPR-3 (Docket 50-29).
(b) USNRC letter to YAEC dated March 8, 1979, I&E Bulletin 79-02.
(c) YAEC letter to USNRC dated March 20, 1979.
(d) USNRC letter to YAEC dated September 18, 1979.
(e) USNRC letter to YAEC dated September 28, 1979.

Dear Sir:

Subject: Supplemental Response to I&E Bulletin 79-02

The main thrust of Bulletin 79-02 is to determine that expansion anchor bolts are:

1. Correctly installed so as to meet allowable design values;
2. Properly sized to encompass increases in seismic design loads caused by base plate flexibility if not originally accounted for.

To assure ourselves that expansion anchor bolts are properly installed at the Yankee Nuclear Power Station we instituted a test program which addresses proper thread engagement, shoulder to cone dimension (on shell type anchor bolts), leveling nut or shell in contact with base plate, imbedment depth, type and size of anchor and pre-load. The selected pre-load is equal to the design load for the type of anchor bolt used. The design load chosen is equal to one fourth the manufacturers ultimate pull-out load as determined by his tests. The four to one factor between ultimate load and design load was also established by the manufacturers. Since we have identified no reason to employ different factors of safety for similar equipment we will continue to use the manufacturers recommended four to one factor of safety for expansion type anchor bolts.

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When the initial testing program identified a failure rate among the shell type anchors (Phillips Red Heads) higher than expected, we shifted to and completed a program which tested and/or replaced all anchors of this type. An estimated total of 85% of the other expansion anchor bolts in the plant were tested and no failures were noted.

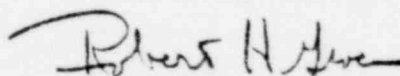
The following is a breakdown of the numbers and types of expansion anchor bolts tested and the systems in which they are found:

<u>Anchor Bolt Type</u>	<u>Number Tested</u>	<u>Number of Failures</u>	<u>Systems</u>
Phillips Red Head	143	10	Emergency Core Cooling Pressurizer Safety Valve Charge and Bleed Spent Fuel Pool Cooling Primary Grade H ₂ O Shutdown Cooling Component Cooling
Hilti Quick Bolt	32	0	Pressurizer Safety Valve Shutdown Cooling Emergency Core Cooling
Slug In	5	0	BFP Discharge Primary Grade H ₂ O
Cinch Bolt	14	0	Primary Grade H ₂ O Component Cooling Spent Fuel Pool Cooling

The design and construction of the Yankee Nuclear Power Station was completed before the NRC requirement for seismic design was established; therefore, seismic loads do not exist nor are they applicable to the deadweight piping supports at this plant. The Systematic Evaluation Program (SEP), in which Yankee Rowe is involved, addresses seismic re-evaluation of safety class piping systems. Any redesign or seismic analyses of piping supports and restraints accomplished under that program will include the effects of base plate flexibility on the structural integrity of the supports and increased anchor bolt loads.

We trust the actions we have taken, described above, will meet the concerns expressed in your Bulletin 79-02. If, however, you require additional information on this subject, please contact us at your convenience.

Very truly yours,



Robert H. Groce
Senior Engineer - Licensing