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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION I  
631 PARK AVENUE  
KING OF PRUSSIA, PENNSYLVANIA 19406

March 8, 1979

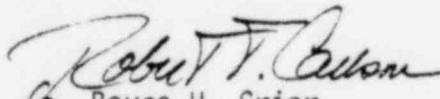
Docket No. 50-29

Yankee Atomic Electric Company  
ATTN: Mr. Robert H. Groce  
Licensing Engineer  
20 Turnpike Road  
Westborough, Massachusetts 01581

Gentlemen:

The enclosed IE Bulletin No. 79-02 is forwarded to you for action. A written response is required. If you desire additional information regarding this matter, please contact this office.

Sincerely,

  
for Boyce H. Grier  
Director

Enclosures:

1. IE Bulletin No. 79-02
2. Listing of IE Bulletins  
Issued in Last  
Twelve Months

cc w/encls:

H. A. tio, Plant Superintendent  
L. E. Minnick, President

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT  
WASHINGTON, D.C. 20555

IE Bulletin No. 79-02  
Date: March 8, 1979  
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PIPE SUPPORT BASE PLATE DESIGNS USING CONCRETE EXPANSION ANCHOR BOLTS

Description of Circumstances:

While performing inservice inspections during a March-April 1978 refueling outage at Millstone Unit 1, structural failures of piping supports for safety equipment were observed by the licensee. Subsequent licensee inspections of undamaged supports showed a large percentage of the concrete anchor bolts were not tightened properly.

Deficiency reports, in accordance with 10 CFR 50.55(e), filed by Long Island Lighting Company on Shoreham, indicate that design of base plates using rigid plate assumptions has resulted in underestimation of loads on some anchor bolts. Initial investigation indicated that nearly fifty percent of the base plates could not be assumed to behave as rigid plates. In addition, licensee inspection of anchor bolt installations at Shoreham has shown over fifty percent of the bolt installations to be deficient.

Vendor Inspection Audits by NRC at Architect Engineering firms have shown a wide range of design practices and installation procedures which have been employed for the use of concrete expansion anchors. The current trends in the industry are toward more rigorous controls and verification of the installation of the bolts.

The data available on dynamic testing of the concrete expansion anchors show fatigue failures can occur at loads substantially below the bolt static capacities due to material imperfections or notch type stress risers. The data also show low cycle dynamic failures at loads below the bolt static capacities due to joint slippage.

Action to be Taken by Licensees and Permit Holders:

For pipe support base plates that use concrete expansion anchor bolts in Seismic Category I systems as defined by Regulatory Guide 1.29, "Seismic Design Classification" Revision 1, dated August 1973 or as defined in the applicable FSAR.

1. Verify that pipe support base plate flexibility was accounted for in the calculation of anchor bolt loads. In lieu of supporting analysis justifying the assumption of rigidity, the base plates

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