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UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
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In Reply Refer To:
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Gentlemen:

Bulletin No. 79-14 was initially sent to you on July 2, 1979. Revision 1 to page 2 of 3 was sent to you on July 18, 1979. Due to an error in transmission and in order to provide continuity to the Bulletin, we are forwarding you pages 1, 2, and 3, which include Revision 1 to page 2 of 3.

Sincerely,

James P. O'Reilly
Director

Enclosure:
Pages 1, 2, and 3
of IE Bulletin 79-17

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

July 2, 1979

IE Bulletin No. 79-14

SEISMIC ANALYSES FOR AS-BUILT SAFETY-RELATED PIPING SYSTEMS

Description of Circumstances:

Recently two issues were identified which can cause seismic analysis of safety-related piping systems to yield nonconservative results. One issue involved algebraic summation of loads in some seismic analyses. This was addressed in show cause orders for Beaver Valley, Fitzpatrick, Maine Yankee and Surry. It was also addressed in IE Bulletin 79-07 which was sent to all power reactor licensees.

The other issue involves the accuracy of the information input for seismic analyses. In this regard, several potentially unconservative factors were discovered and subsequently addressed in IE Bulletin 79-02 (pipe supports) and 79-04 (valve weights). During resolution of these concerns, inspection by IE and by licensees of the as-built configuration of several piping systems revealed a number of nonconformances to design documents which could potentially affect the validity of seismic analyses. Nonconformances are identified in Appendix A to this bulletin. Because apparently significant nonconformances to design documents have occurred in a number of plants, this issue is generic.

The staff has determined, where design specifications and drawings are used to obtain input information for seismic analysis of safety-related piping systems, that it is essential for these documents to reflect as-built configurations. Where subsequent use, damage or modifications affect the condition or configuration of safety-related piping systems as described in documents from which seismic analysis input information was obtained, the licensee must consider the need to re-evaluate the seismic analyses to consider the as-built configuration.

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Action to be taken by Licensees and Permit Holders:

All power reactor facility licensees and construction permit holders are requested to verify, unless verified to an equivalent degree within the last 12 months, that the seismic analysis applies to the actual configuration of safety-related piping systems. The safety related piping includes Seismic Category I systems as defined by Regulatory Guide 1.29, "Seismic Design Classification" Revision 1, dated August 1, 1973 or as defined in the applicable FSAR. The action items that follow apply to all safety related piping 2½-inches in diameter and greater and to seismic Category I piping, regardless of size which was dynamically analyzed by computer. For older plants, where Seismic Category I requirements did not exist at the time of licensing, it must be shown that the actual configuration of safety-related systems, utilizing piping 2½-inches in diameter and greater, meets design requirements.

Specifically, each licensee is requested to:

1. Identify inspection elements to be used in verifying that the seismic analysis input information conforms to the actual configuration of safety-related systems. For each safety-related system, submit a list of design documents, including title, identification number, revision, and date, which were sources of input information for the seismic analyses. Also submit a description of the seismic analysis input information which is contained in each document. Identify systems or portions of systems which are planned to be inspected during each sequential inspection identified in Items 2 and 3. Submit all of this information within 30 days of the date of this bulletin.

2. For portions of systems which are normally accessible*, inspect one system in each set of redundant systems and all nonredundant systems for conformance to the seismic analysis input information set forth in design documents. Include in the inspection: pipe run geometry; support and restraint design, locations, function and clearance (including floor and wall penetration); embedments (excluding those covered in IE Bulletin 79-02); pipe attachements; and valve and valve operator locations and weights (excluding those covered in IE Bulletin 79-04). Within 60 days of the date of this bulletin, submit a description of the results of this inspection. Where nonconformances are found which affect operability of any system, the licensee will expedite completion of the inspection described in Item 3.

*Normally accessible refers to those areas of the plant which can be entered during reactor operation.

3. In accordance with Item 2, inspect all other normally accessible safety-related systems and all normally inaccessible safety-related systems. Within 120 days of the date of this bulletin, submit a description of the results of this inspection.

4. If nonconformances are identified:

   A. Evaluate the effect of the nonconformance upon system operability under specified earthquake loadings and comply with applicable action statements in your technical specifications including prompt reporting.

   B. Submit an evaluation of identified nonconformances on the validity of piping and support analyses as described in the Final Safety Analysis Report (FSAR) or other NRC approved documents. Where you determine that reanalysis is necessary, submit your schedule for: (i) completing the reanalysis, (ii) comparisons of the results to FSAR or other NRC approved acceptance criteria and (iii) submitting descriptions of the results of reanalysis.

   C. In lieu of B, submit a schedule for correcting nonconforming systems so that they conform to the design documents. Also submit a description of the work required to establish conformance.

   D. Revise documents to reflect the as-built conditions in plant, and describe measures which are in effect which provide assurance that future modifications of piping systems, including their supports, will be reflected in a timely manner in design documents and the seismic analysis.

Facilities holding a construction permit shall inspect safety-related systems in accordance with Items 2 and 3 and report the results within 120 days.

Reports shall be submitted to the Regional Director with copies to the Director of the Office of Inspection and Enforcement and the Director of the Division of Operating Reactors, Office of Nuclear Reactor Regulation, Washington, D.C. 20555.

Approved by GAO (R0072); clearance expires 7/31/80. Approval was given under a blanket clearance specifically for generic problems.