

INSPECTION REQUIREMENTS TO REVIEW LICENSEE
ACTIONS TAKEN IN RESPONSE TO
IE BULLETIN 79-02, REVISION NO. 1

I. OBJECTIVE

Verify that the licensee has taken the action required by IE Bulletin 79-02, Revision No. 1 as to the pipe support base plates using concrete expansion anchor bolts.

II. BACKGROUND INFORMATION

IE Bulletin 79-02 is superseded by Revision No. 1, issued June 21, 1979. A copy of Revision No. 1 is enclosed for reference.* Inspection guidance for the original Bulletin was provided by TI 2515/27 for early implementation. In light of Revision No. 1, additional inspection guidance is provided. If IE inspection work has already been completed in accordance with TI 2515/27 in certain areas, the impact on the licensee because of Revision No. 1 should be reviewed to determine if additional inspection work is necessary. If, however, inspection work has not been completed, the guidance provided herein should be implemented. Work performed in the review of licensee actions for IE Bulletin 79-02 (and Revision No. 1) should be reported in the 766 System against the appropriate Module Number (25527B or 25528B).

The guidance provided herein differs from the previous TI (2515/27) in that minimum inspection effort is no longer defined and a clarification of the procedure review inspection is presented. This TI may be used in lieu of TI 2515/27.

The Bulletin describes the circumstances relating to the failures which occurred at Millstone Unit 1 and the design and installation deficiencies at Shoreham. Information from Shoreham indicated that the base plates were inadequately designed and that the anchor bolt installations were deficient.

Shoreham pipe support base plates were originally designed by Stone and Webster (S&W) using techniques said to be "standard for the industry" based on assuming a rigid base plate mounted on a rigid foundation. Anchor bolt pull-out loads were then calculated based on rigid base plate behavior compared to bolt allowable loads. Recent analysis using finite element techniques treated the base plates as flexible members. This work showed significant redistribution of bolt pull-out loads based on flexible plate behavior and in some cases were greater than the pull-out loads when the base plates were treated as rigid members.

The resolution of this problem at North Anna Units 1 and 2 by VEPCO resulted in the addition of gusset plates as stiffeners to a large number of base plates to assure reaction as rigid members thereby justifying the design load pattern that was originally calculated.

*Enclosure 1

Subsequently, in response to a Region II request, IE Headquarters performed an inspection of S&W design activities in this regard. During this inspection IE learned that S&W had issued internally, on October 17, 1977, an Engineering Mechanics Technical Report-612. This EMTR-612 document provided new criteria for designing base plates on S&W plants under construction. S&W did not advise licensees of operating plants (i.e., S&W plants) and they did not advise the NRC of the generic nature of the problem prior to that inspection.

At this point a transfer of lead responsibility was made to DOR for review and evaluation of the problem. Subsequently, DOR requested issuance of IEB 79-02 to initiate licensee action toward resolution of this problem.

III. IE INSPECTION REQUIREMENTS

Because of the initial findings at several plants, it is required that the regional staff be involved with the licensee implementation of IEB 79-02, Revision No. 1 at an early stage. Guidance is provided herein as to the procedural requirements and onsite observations.

A. INSPECTION EFFORT

The actions described should be performed for all power reactor facilities with an operating license or construction permit to assure the timely response on the part of the licensee and to assure verification and/or corrective action of the licensee's findings.

1. SCHEDULE OF LICENSEE'S TESTING

Contacts with each licensee are necessary to identify the schedule of the licensee's activities and to impress upon the licensees the need for a complete testing program and corrective actions in accordance with IE Bulletin 79-02, Revision No. 1.

A regional representative shall contact each licensee to obtain the licensee's schedule for testing, evaluation and corrective action. Knowledge of this schedule will facilitate onsite observations and identify any licensees who are delaying testing unnecessarily. Although the Bulletin stated licensees were not required to shut down to conduct the testing, it is expected that testing of otherwise inaccessible hangers shall be performed during any extended outage. Inspection according to this TI should therefore be included in any major outage.

2. INTERPRETATION OF TESTING REQUIREMENTS

It is expected that licensees will be seeking guidance as to the adequacy of various samplings for testing the integrity of installed base plates. The essential requirement is that the licensee must