

(PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

CON'T

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

800-762-0288

Facility: HBR Unit No. 2

Event Date: 9-19-79

CAUSE DESCRIPTION AND ANALYSIS:

On September 19, 1979 review of a computer reanalysis performed by the plant Architect Engineer (AE), in accordance with the requirements of IE Bulletin 79-14, indicated that a restraint (not pipe) in the Service Water System was calculated to be in an overstressed condition during a Design Basis Earthquake (DBE). Under DBE conditions, operability of the restraint could not be assured as installed, therefore, the restraint, due to its location, could affect two Service Water supply lines to Component Cooling Heat Exchangers A & B. Under those conditions, this could be less conservative than the least conservative condition allowed by Technical Specification paragraph 3.3.4.2.a and is therefore reportable under paragraph 6.9.2.a.2.

The condition of the restraint was apparently the result of a problem that occurred during the construction phase of HBR No. 2 and not as a result of the restraint's design. Six out of sixteen mounting bolts were never installed as evidenced by the lack of mounting holes drilled into the concrete wall. Installation of the missing bolts is prohibited today by the interference created by the pipes being supported by the restraint. Therefore, the alternative approach taken was to modify the restraint with a knee brace (see Corrective Action). This problem was first identified during inspections in accordance with IE Bulletin 79-02 earlier in the year. At that time, analysis by hand calculation indicated the restraint to be acceptable. Subsequently, under inspections and initial engineering reviews, in accordance with IE Bulletin 79-14, the missing bolt deviation was again identified on August 23, 1979. The restraint data used in 79-02 was found to be inconsistent with the data on the piping isometric used in 79-14, resulting in a change in actual restraint loading. Upon reanalysis with the revised 79-14 data, the status of the restraint was found to be questionable under DBE conditions. Specifically, hand calculations which resulted in loads exceeding the allowable were believed excessively conservative since the calculations were based on assumed pipe loads and not actual loads. No computer analysis had been performed for the service water system, therefore, actual loads were not available. Therefore, it was decided to rely on the computer analysis to positively resolve restraint operability. Since results were questionable, a modification to improve the margin of design of the restraint, as installed, was initiated.

CORRECTIVE ACTION:

The restraint was modified the same day by addition of a knee brace from the restraint's vertical member to the floor. This provided restraining force in the horizontal direction much greater in magnitude than that force which would have been provided by the missing bolts.

CORRECTIVE ACTION TO PREVENT FURTHER OCCURRENCE:

Since the condition of the restraint, as installed, was apparently due to an installation problem during original construction and the restraint, as modified, has been verified to be more than adequate during a DBE by the AE, no further corrective action is deemed necessary.