



## SUPPLEMENTAL INFORMATION

### FOR

### LICENSEE EVENT REPORT 79-040

#### CAUSE DESCRIPTION AND ANALYSIS:

On October 29, 1979, review of computer reanalyses by the Plant Architect/Engineer, in accordance with the requirements of IE Bulletin 79-14, indicated two of the three discharge lines from the two motor driven auxiliary feedwater pumps (AFWP) could be stressed above allowable values in the event of a Design Basis Earthquake (DBE).

Seven restraints on this system had been calculated to be overstressed on October 26, 1979. Based on these results, it was determined that the associated motor driven auxiliary feedwater pump discharge piping should be reevaluated with the seven restraints not present, and the subject restraints should also be modified. On October 27, 28, and 29, four of the seven restraints were modified and one restraint was fabricated and added to the system. Two restraints could not be modified as required because of physical obstructions. Reanalysis of the piping system (assuming no support from the seven problem restraints) was completed and reviewed the afternoon of October 29. This reanalysis showed the two discharge pipes could be subject to stresses above allowable values under DBE conditions. This could result in a degraded mode condition allowed by Technical Specifications Paragraph 3.4.1.d and is therefore reportable under Paragraph 6.9.2.b.2.

One flow path from the motor driven AFWP's and the steam driven AFWP remained operable and in service during this sequence of events. Reanalysis showed that the two restraint modifications not performed would not be necessary to assure system operability if the other five modifications were completed. Reanalysis of the piping with the five modified restraints in place resulted in acceptable stress values in the piping and the restraints. Although the remaining two modifications were not performed, they are being reviewed for future installation.

The restraint deviations were attributed to apparent improper installation during construction. This conclusion is based on the number of deviations found (i.e., restraints missing, restraints mislocated, and restraint configuration differences) between the as-built configurations and the original analysis input. These deviations resulted in analyses showing overloading of the installed restraints during a DBE resulting in potential failure of the restraint. Restraint failure resulted in an analysis showing pipe stresses above allowable values during a DBE, thus operability of the pipes could not be assured.

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CORRECTIVE ACTION:

One restraint was added since the original restraint was not accessible for modification due to physical obstructions, and four other restraints were modified. The completed modifications resulted in restraints which properly support the system piping. This was verified by performing a piping stress analysis which resulted in acceptable stress values. All modifications and necessary analyses were completed and the piping verified operable on October 29, 1979.

CORRECTIVE ACTION TO PREVENT FURTHER OCCURRENCE:

The corrective action listed above should prevent recurrence of this event. Inspection in conjunction with IE Bulletin 79-14, has resulted in approximately 85% of the auxiliary feedwater piping being inspected and evaluated and/or reanalyzed. From these inspections only the seven restraints were identified as having potential problems which could result in system inoperability. As follow-up to this event and in conjunction with IE Bulletin 79-14 requirements, the remainder of auxiliary feedwater piping, located inside the containment vessel, will be inspected and evaluated as soon as possible to assure no further problems exist with the auxiliary feedwater piping. In addition, the two restraint modifications which were not installed are being reviewed for future modification to provide additional conservatism.