

3.13 Shock Suppressors (Snubbers)

Applicability:

Applies to the operability of all safety-related shock suppressors (snubbers) listed in Table 3.13-1.

Objective

To specify the requirements for operability of shock suppressors (snubbers).

Specifications:

- 3.13.1 The reactor shall not be made critical unless (1) all shock suppressors (snubbers) listed in Table 3.13.1 are operable.
- 3.13.2 Continued hot shutdown or power operation is permitted for a period up to 72 hours without the conditions of 3.13.1 being met. If the conditions of 3.13-1 are not met in that 72 hour period, then the reactor shall be in a cold shutdown condition within the next 36 hours.

Basis

Shock suppressors (snubbers) are required to be operable to ensure that the structural integrity of the reactor coolant system and all other safety related systems is maintained during and following a seismic or other event initiating dynamic loads.

Snubbers may be replaced by rigid structural supports (bumpers) provided an analysis is performed to demonstrate that appropriate acceptance criteria are satisfied for design basis seismic and pipe break events and provided that the bumpers are inspected periodically in a manner appropriate for rigid structural supports.

ATTACHMENT B

The upper portion of the two steam generators at Ginna Station are currently restrained against lateral seismic and pipe break loads by eight large (532,000 lb. capacity) hydraulic shock arrestors (snubbers). The intent of the proposed amendment to the Technical Specifications is to permit replacement of six of the eight snubbers (per steam generator) with rigid structural members, or bumpers. A pair of existing snubbers will remain in the upper support configuration for each steam generator. The snubbers to be replaced were installed to mitigate the dynamic effects of seismic events and postulated pipe ruptures. The proposed configuration, allowing the use of bumpers, retains high safety margins under postulated loading conditions. A description of the changes and a summary report were previously provided to the NRC Staff by letters dated September 22, 1987, November 20, 1987 and December 15, 1987.

Enclosure 1 is a revised report, "Steam Generator Hydraulic Snubber Replacement Program", May 1988, Rev. 2, summarizing the analyses performed for the modified upper support configuration to determine the loads on RCS piping and component supports due to postulated seismic events and pipe breaks. This report confirms the applicability of previously approved leak-before-break analyses and incorporates the guidance of Generic Letter 87-11 for elimination of arbitrary intermediate breaks. The results of the analyses determined that the RCS, with the proposed modified steam generator upper lateral support configuration, will meet acceptance criteria for resulting loads from postulated seismic and other design basis events.

This proposed change to the Technical Specifications adds a statement in the bases to Section 3.13, allowing the substitution of rigid structural members for snubbers provided that the modified configuration has been analyzed and found to be acceptable. The specific inspection criteria and surveillance requirements for snubbers do not apply to the bumpers. The maintenance inspection of the bumpers will be visual and of a type appropriate to rigid supports, in accordance with the established RG&E ISI program. The benefits of this change will include reduced worker radiation exposures and lower maintenance costs.

Granting this request would not affect the design basis of the ECCS or containment and compartment structures, nor change the equipment qualification basis of any engineered safety feature response.

This proposed amendment has been reviewed against the three factors of 10 CFR 50.92. It has been determined that the amendment does not involve a significant hazards consideration for the following reasons.

1. This change will not result in a significant increase in the probability or consequences of an accident previously evaluated.
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The proposed modification involves replacing six of the eight snubbers in each steam generator's upper lateral support with rigid structural supports. The lateral restraints limit the displacement of the steam generators due to the dynamic effects of postulated seismic and pipe break events. The analyses of the modified steam generator upper support configuration provided in the enclosed report demonstrates that high safety margins will be maintained under postulated loading conditions, including normal loads, thermal expansion, design basis seismic events, postulated pipe ruptures at the steam generator secondary-side terminal ends (Main Steam and Feedwater) and reactor coolant loop auxiliary line nozzles (Pressurizer surge, SI accumulator, and RHR). The postulated break locations are conservatively appropriate based upon the application of leak-before-break technology and the relaxation of arbitrary intermediate pipe rupture requirements in accordance with Generic Letter 87-11 and Standard Review Plan Section 3.6.2. The NRC has determined that the probability or consequences of an accident are not increased when leak-before-break technology is properly applied. Through proper application of leak-before-break technology, it has been demonstrated that advanced fracture mechanics analysis is an acceptable alternative to the use of structures and components, including snubbers, to mitigate the consequences of dynamic effects of postulated pipe ruptures. Dynamic effects of postulated ruptures in the main coolant loop piping have been eliminated from the design basis for Ginna through application of a leak-before-break technology consistent with GDC-4 and previously approved for the RG&E Ginna plant in a letter dated September 9, 1986. The elimination of arbitrary intermediate breaks in the main steam and feedwater lines has been previously discussed and agreed upon with the NRC as documented in an RG&E letter dated December 15, 1987 and in Sections 2.1.2 and 4.3 of Enclosure 1. Because adequate safety margins, based on the Updated Final Safety Analysis Report allowable stresses, are maintained with the modified configuration as shown in Enclosure 1, there is no increase in the probability or consequences of an accident previously evaluated.

In addition, this change will not modify the design basis of other structures, systems and components, nor modify the equipment qualification basis or any engineered safety feature response.

2. This change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed modification replaces snubbers with a different type of support, rigid bumpers. These supports are designed to restrain steam generator displacement upon a seismic or pipe break event. As shown in the enclosed report, the reactor coolant system, with the modified steam generator upper lateral support configuration, will continue to satisfy design basis requirements with high safety margins. Accordingly, this change will not create the possibility of a new or different kind of accident from any accident previously evaluated. In addition, there is no possibility that the credible failure of any portion of the modified upper lateral support configuration could produce any new initiating event.

3. This change does not involve a significant reduction in a margin of safety.

The enclosed report documents the evaluation of the modified support configuration under design basis loading conditions. This report concludes that the acceptance criteria for RCS piping stresses and component support loads are satisfied. These acceptance criteria incorporate conservatisms such that by satisfying the criteria the established margins of safety are maintained. Furthermore, Tables 4 and 7 of the enclosed report indicate that the actual stress or load as a fraction of the allowable load remains the same as, or decreases, for the modified support configuration. Therefore, there are no significant reductions in the margins of safety.