



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO REQUEST FOR RELIEF FROM MODIFYING PIPE SUPPORTS FOR

OMAHA PUBLIC POWER DISTRICT

FORT CALHOUN STATION, UNIT NO. 1

DOCKET NO. 50-285

1.0 INTRODUCTION

By letter dated October 19, 1995, Omaha Public Power District, submitted a request for relief from modifying supports SIH-3, SIS-63, SIS-65, and RCH-13 at the Fort Calhoun Station (FCS). These supports were evaluated during an OPPD program to re-evaluate safety-related piping system analyses. The loads in these supports or their connections under revised thermal modes were found higher than previous values and were also found to exceed the applicable licensing basis load or stress allowables. As a result, modifications are required to bring these supports into conformance with the applicable licensing-basis allowables. However, these particular supports are located in high radiation areas, and the upgrade of these supports may constitute a significant radiation hazard to the personnel involved. By letter dated September 18, 1996, OPPD provided additional information in response to the staff's request for additional information dated September 10, 1996.

The NRC staff has reviewed and evaluated the licensee's request and supporting information regarding relief from modifying the subject pipe supports.

2.0 EVALUATION

Supports SIH-3 (pipe hanger), SIS-63 (snubber) and SIS-65 (snubber) are located in Room 15A of the auxiliary building, on the shutdown cooling cross-connect piping discharge of heat exchangers AC-4A and AC-4B. Support RCH-13 is attached to the pressurizer spray line within the containment building.

The limiting component for SIH-3 is a baseplate, in which the expansion anchor bolts have a factor of safety of 3.1. Per NRC Inspection and Enforcement Bulletin (IEB) 79-14, the required factor of safety for Hilti anchor bolts is 4.0. However, this bulletin has a provision under which lower factors-of-safety are acceptable on a case-by-case basis under certain hardship conditions.

Snubbers SIS-63 and SIS-65 are attached to a trunnion welded to an elbow of a 12-inch safety injection pipe. The limiting component is the weld in this trunnion. The governing stress in this weld is the shear stress and occurs under combined operating basis earthquake (OBE) and operating conditions. The revised shear stress is 22,814 psi. The licensing basis upset allowable

stress is stated as 15,936 psi, and the OPPD licensing basis faulted allowable stress is stated as 22,178 psi. This shear stress exceeds the licensing basis upset allowable shear stress by 40 percent and the licensing basis faulted allowable shear stress by 3 percent. However, the interim operability criteria allowable shear stress is given as 31,500 psi, which is 38 percent higher than the governing shear stress.

OPPD has stated that Room 15A is a 9' X 24' room, with several large valves and 12-inch piping. This room is a high-radiation area, which creates a concern with maintaining as-low-as-reasonable-achievable (ALARA) exposures. Based on criteria established in IEB 79-14, the staff finds that modifying the anchor bolts to meet the licensing basis factor of safety of 4.0 represents a hardship condition without a significant increase in the level of safety. Therefore, the factor of safety of 3.1 for the expansion bolts of hanger SIH-3 is acceptable. However, in view of the significant exceedance of the licensing basis upset allowable shear stress of the weld, the staff does not consider the modification of the trunnion-to-elbow weld as a significant hardship condition. It is required that this weld be modified, to meet the licensing basis allowable stresses.

The limiting component of support RCH-13 is an angle iron, where the maximum calculated bending stress is 23,335 psi. The licensing basis upset allowable stress for this component is 22,982 psi, while the OPPD licensing basis faulted allowable stress is stated as 28,858 psi. The maximum bending stress therefore exceeds the licensing basis upset allowable stress by less than 2 percent, while it meets the licensing basis faulted allowable stress by an adequate margin.

Support RCH-13 is a pipe hanger located approximately 12 inches off the reactor coolant system (RCS) loop 1B. The area around the RCS is a high radiation area with localized hot spots, which also creates a concern with maintaining ALARA exposure in this area. The staff finds this a hardship condition and therefore, the maximum bending stress in the angle is acceptable.

3.0 CONCLUSION

The staff has concluded that relief be granted from modifying pipe supports SIH-3 and RCH-13. However, the request for relief from modifying pipe supports SIS-63 and SIS-65 is denied. Since the interim operability criteria shear stress is met, the modification may be performed no later than the 1998 Refueling Outage.

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Date: November 19, 1996