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Nuclear Regulatory Commission
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DOCKET 50-255 - LICENSE DPR-20 - PALISADES PLANT -
RESPONSE TO INSPECTION REPORT 90025 - TENDON SURVEILLANCE

Background

During the 1990 refueling outage Palisades replaced its steam generators. This project required a temporary opening into the side of the post-tensioned containment structure. A total of 130 tendons (70 vertical and 60 hoop) were affected during the project. Fifty-one tendons located at the opening were removed; the remaining were only detensioned. One tendon was damaged while creating the opening and was replaced with a new, identical tendon.

The processes and controlling documents for the steam generator replacement and the containment opening were reviewed by the NRC staff with the results being reported in Inspection Report (IR) 90017, dated August 3, 1990. As a follow-up to IR 90017, the NRC issued a Safety Evaluation Review (SER), dated November 20, 1990, entitled "Safety Evaluation Related to the Containment Construction Opening and Related Open Items from Inspection Report 255/90017." In the SER the NRC staff concluded that the final acceptability of the containment structure would be reserved until the staff had completed the review of the planned Structural Integrity Test (SIT).

In our follow-up response to IR 90017, dated February 12, 1991, we discussed our position regarding the tendons affected during the steam generator replacement project (SGRP), and concluded that we were not planning any substantial changes to the ongoing tendon surveillance program. We committed to include one vertical tendon and two hoop tendons from the SGRP opening in the representative sample of tendons to be tested. During further discussions, the NRC staff questioned whether the replaced tendon would be included in the surveillance program. Palisades staff concluded that the replaced tendon would not be included in the surveillance program.

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In Inspection Report 90025, dated May 24, 1991, the NRC staff provided the results of their review of the final acceptability of the containment structure. The staff concluded that no violations or deviations were identified in this area. However, the NRC staff presented a position regarding the replaced tendon concluding that inclusion of the replaced tendon in the 1992 surveillance program would be prudent. The NRC staff further stipulated that it was not requiring an adjustment of the on-going surveillance program for the inclusion of a single tendon.

Discussion

The Palisades containment structure contains 847 tendons. During the first 20 years of plant life, only 53 tendons have been involved in the on-going tendon surveillance program. Following the fifth year surveillance, the tendon selection method was changed from designated tendons to randomly selected tendons. The purpose of this change was to improve the reliability of the surveillance results.

The NRC staff has concluded that it would be prudent to include the tendon that was replaced during the SGRP in the 1992 tendon surveillance. We agree conceptually that it would be a good idea if all things were equal. However, access to the tendon in question, hoop tendon 38BF, is located in the component cooling (CCW) surge tank room. The access way to the tendon is directly behind the CCW surge tank (T-3). During the SGRP, damage to the surrounding equipment (instruments and instrument tubing - repair cost \$8000) occurred as a result of detensioning, removing, replacing and tensioning the tendons in this room. Furthermore, to access hoop tendon 38BF, access holes had to be bored in the concrete floor of the CCW surge tank room. During a normal surveillance, the tendons in this room would be considered inaccessible due to the limited working space. It is estimated that including the replaced tendon in the 1992 tendon surveillance would increase the cost of the tendon surveillance program by approximately \$15,000 due to the additional work required in the CCW surge tank room to access the tendon.

The Palisades staff has reviewed the NRC's recommendation and believes that the information gained by inclusion of the replaced tendon in the 1992 tendon surveillance program would not be worth the additional cost. We agree that the majority of the pre-stress losses in a new tendon occurs during the first two years of service, however, the results obtained from the replaced tendon cannot be compared to the total existing tendon population. We believe that more valuable information concerning the condition of the Palisades containment building will be obtained if a randomly selected tendon is included in the 1992 tendon surveillance rather than the replaced tendon.

Conclusion

The hoop tendon (38BF) which was replaced during the SGRP will not be included in the 1992 tendon surveillance program. As previously committed, we will include one vertical tendon and two hoop tendons from the tendons affected during the SGRP. We believe that inclusion of these tendons in the 1992 tendon surveillance program will provide sufficient information regarding the effects of the construction opening on the containment building.



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