PORTLAND GENERAL ELECTRIC COMPANY
EUGENE WATER & ELECTRIC BOARD
AND
PACIFIC POWER & LIGHT COMPANY

Operating License NPF-1
Docket 50-344
License Change Application 187

This License Change Application requests modifications to Operating License NPF-1 for the Trojan Nuclear Plant to revise the Trojan Technical Specifications for steam generators to allow tube repair by sleeving as an alternative to plugging.

PORTLAND GENERAL ELECTRIC COMPANY

By _____
D. W. Cockfield
Vice President
Nuclear

Subscribed and sworn to before me this 30th day of November 1989.

_____
Notary Public of Oregon

My Commission Expires: July 5, 1992

Description of Changes

The proposed changes to Trojan Technical Specification (TTS) 3/4.4.5, "Steam Generators", and the associated Bases will allow sleeving of steam generator tubes. There is also one editorial change as indicated below. The specific changes are as follows:

1. TTS 4.4.5.2.b.1 is changed so that whereas it was required to include all nonplugged degraded tubes in the first sample of tubes selected for each inservice inspection, now only the nonplugged degraded tubes that have not been sleeved in the affected area will be required to be included in the sample.

2. TTS 4.4.5.4.a.11 is changed to clarify that F* distance no longer applies if a sleeve is installed in the roll expanded portion of a tube.

3. TTS 3/4.4.5 throughout is changed to require the same actions for sleeves with imperfections as is required for tubes with imperfections.

4. TTS 4.4.5.4.a.5 is changed to refer to the repair limit rather than the plugging limit in the definition of "defect".

5. TTS 4.4.5.4.a.5 is changed so that whereas a tube containing a defect was defined as defective, now a tube containing a defect and not sleeved in the affected area is defined as defective.

6. TTS 4.4.5.4.a.6 is changed so that what was called the "plugging limit" is now called the "repair limit" and the definition indicates that when a tube reaches the limit, which is an imperfection depth of 40 percent of the nominal tube wall thickness, that the tube shall be removed from service by plugging or can now be repaired by sleeving in the affected area.

7. TTS 4.4.5.4.a.6 is changed to remove unnecessary parentheses from around the "40" in "(40) percent of the nominal wall thickness" - editorial.

8. TTS 4.4.5.4.b is changed so that whereas a steam generator was considered operable after the plugging of all tubes exceeding the plugging limit, now a steam generator shall be considered operable after either the plugging or sleeving in the affected areas of all tubes exceeding the repair limit.

9. TTS 4.4.5.5.a is changed to include in the 15-day report following each inservice inspection of steam generator tubes the number of sleeved tubes in each steam generator in addition to the number of plugged tubes in each steam generator.

10. TTS 4.4.5.5.b.3 is changed to include in the annual report of the results of the steam generator tube inservice inspection the identification of tubes sleeved in addition to the identification of tubes plugged.

11. Table 4.4-2, "Steam Generator Tube Inspection", is changed in five places to indicate in applicable "Action Required" blocks that defective tubes are to be plugged or now sleeved.

12. TTS 3/4.4.5 Bases are changed as follows:

    a. Third paragraph is changed to indicate that leaking steam generator tubes will be plugged or now sleeved in the affected area.

    b. Fourth paragraph is changed so that whereas plugging was required of all tubes exceeding the plugging limit, now plugging or sleeving in the affected area will be required of all tubes exceeding the repair limit.

    c. A new section is added to discuss steam generator sleeving, to list the sleeve designs which are approved by the Nuclear Regulatory Commission (NRC) for use at Trojan, and to document the requirement that future sleeve designs must be approved by the NRC prior to their use.

Reason for Changes

The TTS now requires that all defective steam generator tubes be plugged. Plugging tubes reduces reactor coolant flow and is less desirable in some cases than a repair technique that does not remove the tubes from service. The changes described above will allow sleeving of steam generator tubes as a corrective or preventive maintenance action. Sleeving is a safe and effective procedure which does not remove tubes from service.

Portland General Electric Company (PGE) has reviewed the sleeving designs of a variety of vendors. Three vendors have been selected for use at Trojan. Reports which describe their sleeving designs and provide information to support their use are as follows:

1. BAW-2094P, "Recirculating Steam Generators Kinetic Sleeve Qualification for 7/8-inch OD Tubes", October 1989.

2. a. BKAT-01-P, "Topical Report: Repair of Defective Steam Generator Tubes by Sleeving", Revision 1, April 1989.

   b. EDR-TRJ-01-P, "Design Report: Repair of Defective Steam Generator Tubes by Sleeving for Trojan Nuclear Power Plant", October 1989.

3. CEN-395-P, "Trojan Steam Generator Tube Repair Using Leak Tight Sleeves", November 1989.

Determination of Significant Hazards Considerations

In accordance with the requirements of Title 10, Code of Federal Regulations (CFR), Part 50.92, this License Change Application is judged to involve no significant hazards based upon the following information:

1. Does the proposed license change involve a significant increase in the probability or consequences of an accident previously evaluated?

   Some steam generator tubes have been found to have a varying amount of wall degradation. When the degradation is extensive, the normal practice of plugging defective tubes may reduce the effectiveness of the steam generators and eventually reduce the performance of the nuclear steam supply system. An alternative to plugging tubes is installing a sleeve as a new pressure boundary inside the original tubes to bridge the degraded area, thus permitting the tubes to remain in service. The integrity of the steam generator tubes will be equivalent to that of an original tube. In addition, the steam generator will remain capable of performing its required heat transfer function. Therefore, the proposed change does not involve an increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed license change create the possibility of a new or different kind of accident from any previously evaluated?

   As discussed above, both the structural integrity and the heat transfer capability of the steam generators will not be significantly affected by the installation of sleeves. In addition, the tube sleeves do not interact with any of the other plant systems. Thus, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the proposed license change involve a significant reduction in a margin of safety?

   The heat transfer capabilities of the steam generators will be improved by utilizing the sleeving process rather than the currently required plugging, since the reactor coolant system flow will not be reduced as much. Furthermore, the structural integrity of the steam generators will not be degraded. Therefore, the proposed change does not involve a reduction in a margin of safety.

Safety/Environmental Evaluation

Safety and environmental evaluations were performed as required by 10 CFR 50 and the TTS. The review determined that the proposed change does not create an unreviewed safety question, nor does it create an unreviewed environmental question.

Schedule Consideration

Primary water stress corrosion cracking (PWSCC) resulted in the plugging of a significant number of steam generator tubes during Trojan's 1989 Refueling Outage. A number of corrective actions are being taken to arrest the further development of PWSCC; however, there exists a real possibility that the number of tubes required to be plugged during the 1990 Refueling Outage could exceed the presently analyzed limit of 11-1/2 percent uniform tube plugging. Therefore, to address this contingency, PGE desires that the NRC review and approve this proposed license change by March 10, 1990 and make the effective date March 21, 1990.

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