Portland General Electric Company

Donald J. Brosi Assistant Vice President

July 26, 1979

Trojan Nuclear Plant
Docket 50-344
License NPF-1

Director of Nuclear Reactor Regulation
ATTN: Mr. A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Sir:

In your letter of June 15, 1979, you requested additional information on three items relating to the Trojan Nuclear Plant Containment Tendon Surveillance Program. Our response to Items 1 and 2 are attached per the requested schedule. The response to Item 3 will follow with our upcoming revision to License Change Application 15.

Sincerely,

c: Mr. Lynn Frank, Director
State of Oregon
Department of Energy

Mr. R. H. Engelken, Director
Nuclear Regulatory Commission
Region V

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PORTLAND GENERAL ELECTRIC RESPONSE TO NRC COMMENTS

Item 1 - Response to NRC Comment No. 1

As stated in our letter of April 25, 1979, the intended exclusion of surveillance tendons which anchor on the north face of the 240° buttress above the main stream relief valves is based on personnel safety considerations. During plant operation, surveillance personnel could be subjected to steam and extreme noise if actuation of the relief valves were to occur while tendons passing through the 0° to 120° sector between Elevations 126'-8" and 168'-11" were being inspected.

It should be noted that the tendons anchored on the north face of the 240° buttress do not pass through the sector of the Containment adjacent to the relief valves. Both horizontal and vertical tendons which traverse the sector adjacent to the main steam line relief valves have been covered in the tendon sample population for surveillance operations performed. To date, seven hoop tendons above the relief valves and three inverted U tendons in the vicintiy of the relief valves have been inspected in the surveillance programs with acceptable results. In addition, the Containment concrete above the exhaust stacks has been visually inspected with the aid of binoculars, and no evidence of concrete surface degradation was detected.

The absence of any visually detectable degradation of the Containment, together with successful testing of tendons passing above the exhaust stacks leads to the conclusion that the conditions of tendons excluded from surveillance are adequately represented by the tendons that have been inspected. As stated in our inital response, we believe that the selected surveillance tendons provide a reasonably random and representative sampling of tendon performance throughout the Containment for the surveillance time interval. We also consider that the intent of regulatory position C.2.4 has been met.

Item 2 - Response to NRC Comment No. 2

As reported on Page 5-1 of the report, all 13 tendons were inspected for discontinuous or missing wires. Wire-by-wire continuity checks were made on all wires for eight of the tendons. This method of observing movement of the individual wire at the end opposite to the end being moved provides positive assurance that all discontinuous wires are detected. For five of the 13 tendons, the inspection was made by visual observation during complete tendon relaxation and during efforts to move the stressing washer. We also believe that visual observation of the tendon during complete detensioning, without moving individual wires, provides reasonable assurance that all discontinuous wires are detected. Both the Trojan surveillance experience and Bechtel experience on other surveillances indicate that discontinous wires are visually detected during the detensioning operations.

As shown in Table 6.1 of the report, a total of 2,333 wires, out of a possible 2,340 wires, for the 13 surveillance tendons were determined to be effective during the retensioning stage of the surveillance. Of the seven missing or discontinuous wires, two wires (one each from V126 and 32H014) were removed for surveillance test samples, and two wires were documented as missing in the original quality control records (one each from V110 and V201). The discontinuous wire documented during this surveillance in tendon 32H023 is very likely the same wire listed as kinked in the original quality control records, since 179 wires in this tendon were determined to be effective both originally and during the first year surveillance. Finally, both the wire not buttonheaded and the protruding wire in tendon 21H109 appear to have been installed that way initially, although not listed as such in the original quality control documentation. In summary, the results indicate that only two wires were discovered to be ineffective which were not so listed in the original quality control documentation, and even these two appear to be unchanged since initial installation. Hence, all of the apparent originally effective wires in the 13 tendons remained effective during the surveillance time interval.

The integrity of tendons, for which the stressing washers could not be moved, has not been compromised. Loads applied to the stressing washers in an attempt to move them were not recorded, but were applied with equipment considered standard and were not of a magnitude which would cause damage to the stressing washers or to the tendon wires. The reason the stressing washers could not be moved was not specifically determined during the surveillance. A possible reason could be a slight binding of wires with the washer due to misalignment of individual wires from their position in the tendon to their position in the stressing washer. Another possible reason could be a small amount of local yielding of the stressing washer at the interface with the buttonhead. Neither of these conditions would degrade the capacity of the tendons.

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