Portland General Electric Company

Bart D. Withers Vice President

February 28, 1986

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Trojan Nuclear Plant Docket 50-344 License NPF-1

Mr. John B. Martin Regional Administrator, Region V U.S. Nuclear Regulatory Commission 1450 Maria Lane, Suite 210 Walnut Creek CA 94596-5368

Dear Mr. Martin:

IE Bulletin 85-01: Steam Binding of Auxiliary Feedwater Pumps

IE Bulletin 85-01, dated October 29, 1985, informed licensees of a potentially serious safety problem involving the inoperability of auxiliary feedwater (AFW) pumps due to steam binding. The bulletin indicates that more than 22 AFW steam binding events have occurred since 1981 and identifies action to be taken by 28 operating PWR licensees, including PGE. A report describing the methods used to accomplish the prescribed actions was requested within 120 days. The following results from our review and evaluation of Bulletin 85-01.

AFW pump discharge check valve backleakage has not been known to occur at the Trojan Nuclear Plant. The Trojan Plant design includes one common and two individual discharge check valves per safety-related AFW pump. Under normal conditions, a differential pressure of approximately 1,000 psid is present to close the check valves when the pumps are stopped. Also, the 6-in. discharge check valves for each safety-related pump are vertically mounted to provide additional assurance of positive seating during conditions of low differential pressure. These design features protect against steam binding the AFW pumps.

In addition to the design features described above, the following actions have been/are being accomplished by Portland General Electric Company in response to IE Bulletin 85-01 and INPO Significant Operating Experience Report 84-3 of April 17, 1984.

- In June 1985, OI-8-2, the operating procedure for the AFW System, was revised to require that the safety-related AFW pump discharge piping be checked for elevated temperatures approximately 5 minutes after each time a pump is stopped. This change (Revision 19) was implemented on June 29, 1985.
- Operations personnel were trained on the possible causes and symptoms of backleakage through the AFW pumps, and on the aforementioned procedure change, during a retraining course in October and November 1985.

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- 3. A routine operating test procedure (POT 24-1) was revised in December 1985 to provide for monitoring AFW pump discharge piping temperatures. However, prior to implementing that revision, additional changes were made to POT 24-1. The revised procedure now includes a requirement to monitor AFW pump discharge piping temperatures at least once each shift, and prescribes follow-up actions in the event that elevated temperatures are identified. The revision has been approved by the Plant Review Board and is being implemented at this time.
- 4. The 18-month test procedure for the AFW System (POT 5-3) has been revised to require performance of a full-system-pressure leak test for the second-off AFW pump discharge check valves. This procedure change will also be implemented in March 1986.
- 5. Contact surface thermometers will be installed on the AFW pump discharge piping during the 1986 refueling outage (currently scheduled for April 24 through June 17, 1986). The thermometers will provide a means of identifying and recording the piping temperature on a once-per-shift basis. Piping temperatures greater than 125°F will require further evaluation.

If steam binding of both safety-related AFW trains should occur, the electric motor-driven AFW pump, with its separate suction and discharge piping, could be relied upon to supply feedwater to the steam generators. The electric pump flow path has four discharge check valves in series (two are also used in the safety-related pumps flow path).

Sincerely.

Bart D. Withers Vice President Nuclear

c: U.S. Nuclear Regulatory Commission Document Control Desk

> Mr. Lynn Frank, Director State of Oregon Department of Energy



Subscribed and sworn to before me this 28th day of February 1986.

Notary Public of Gregon

My Commission Expires: August 9, 1987