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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
GENERIC IMPLICATIONS OF SALEM ATWS EVENT
GENERIC LETTER 83-28, ITEMS 3.1.1 AND 3.1.2
PORTLAND GENERAL ELECTRIC COMPANY
TROJAN NUCLEAR PLANT
DOCKET NO. 50-344

I. INTRODUCTION

On February 25, 1983, during startup of the Salem Unit 1 plant, both circuit breakers in the Reactor Trip System failed to open automatically upon receipt of a valid trip signal. As a result of that event, the NRC's Office of Inspection and Enforcement issued IE Bulletin 83-01 which described the event and requested specified prompt corrective and preventive actions by licensees. As the cause and ramifications of the event were more clearly developed, the NRC's Office of Nuclear Reactor Regulation issued on July 8, 1983, Generic Letter 83-28, "Required Actions Based on Generic Implications of Salem ATWS Events." This letter addressed issues related to reactor trip system reliability and general management capability. The letter was sent to all licensees of operating reactors, applicants for operating licenses and holders of construction permits.

One of the areas of reactor trip system reliability considered in Generic Letter 83-28 (GL 83-28) is that of post-maintenance testing of reactor trip system components. This is identified in GL 83-28 as Item 3.1. This evaluation addresses the acceptability of the responses to parts 3.1.1 and 3.1.2 of this item provided by the Portland General Electric Company (the licensee) for the Trojan Nuclear Plant (the facility).

II. EVALUATION

Items 3.1.1 and 3.1.2 of GL 83-28 state as follows:

"1. Licensees and applicants shall submit the results of their review of test and maintenance procedures and Technical Specifications to assure that post-maintenance operability testing of safety-related components in the reactor trip system is required to be conducted and that the testing demonstrates that the equipment is capable of performing its safety functions before being returned to service.

"2. Licensees and applicants shall submit the results of their check of vendor and engineering recommendations to ensure that any appropriate test guidance is included in the test and maintenance procedures or Technical Specifications, where required."

By letters dated November 4, 1983 and July 19, 1985, the licensee responded to a number of GL 83-28 items, including Items 3.1.1 and 3.1.2. Regarding Item 3.1.1, the licensee's November 4, 1983 letter stated all safety-related components in the reactor trip system are required to be tested to verify operability prior to their return to service following maintenance, per Administrative Order AO-3-9, Maintenance Requests. Upon reviewing the provisions of AO-3-9 cited by the licensee, the staff noted certain statements suggesting testing might be optional. This was clarified by the licensee's letter of July 19, 1985, which stated that all safety-related components in the reactor trip system will be required to be tested following maintenance except as specified in AO-3-9. The exception noted in AO-3-9 refers to "installation checks". According to the licensee, this type of check is applied where the characteristic to be verified can be checked by a qualified craftsman without detailed procedures, detailed acceptance criteria or technical assistance. Examples of "installation checks" provided by the licensee include checks that:

Electrical circuits, controls and relay settings are correct.

Instrumentation is calibrated and in service as required.

Limit switches, interlocks and stops are properly adjusted and set.

In addition, the licensee stated in the July 1985 response that AO-3-9 will be revised to require a senior reactor operator to review Maintenance Requests and discuss the work performed with Maintenance personnel to ensure that required testing is adequately specified.

Based on the foregoing, we observe the only exception to the testing requirement noted by the licensee is where the "test" involves an "installation check". We have reviewed the licensee's definition of an "installation check" and the examples of such checks provided by the licensee. Based on this review, we agree the types of activities are, in fact, installation checks and not susceptible to testing other than confirmation that a device is properly installed or the settings are correct. Accordingly, we conclude the breadth of testing performed by the licensee pursuant to Section 3.1.1 of GL 83-28 is acceptable.

Regarding the ability of prescribed post-maintenance testing to demonstrate the capability of the reactor trip system to perform its safety function prior to being returned to service, the licensee's response of November 4, 1983 stated all safety-related tests were being reviewed to ensure this objective was met and that the review would be completed by November 15, 1984. By letter dated May 28, 1985, the NRC requested the licensee to provide the results of this review. The licensee's response of July 19, 1985 stated the procedure review was being conducted in conjunction with implementation of the automatic shunt trip breaker modification and would not be completed until December 31, 1985. The licensee stated the procedures being reviewed included the applicable portions of PICT-10-1, Reactor Protection System; PICT-22-1, Time Response Coordinating Document; and PICT-22-3, Reactor Trip and ESF Logic Response Time. Although the licensee's review is not yet complete, the staff believes it is sufficiently well

defined and sufficiently near completion for the staff to conclude there is reasonable assurance the licensee will acceptably satisfy the guidance relating to this element of Section 3.1.1 of GL 83-28.

Regarding Item 3.1.2 (incorporation of vendor and engineering recommendations in test and maintenance procedures for the reactor trip system), the licensee's letter of November 4, 1983 states the licensee has received copies of all applicable Technical Bulletins and Data Letters from Westinghouse (the reactor trip system vendor). The licensee also stated review of these documents confirmed facility test and maintenance procedures satisfied the requirements of these documents. The licensee noted a new technical bulletin had recently been received and was currently being reviewed for incorporation into facility maintenance procedures. Based on the foregoing, the staff concludes the licensee has satisfactorily implemented the guidance relating to this element of Section 3.1.2 of GL 83-28.

III. CONCLUSION

Based on the licensee's confirmation that post-maintenance testing is required to be performed on safety-related equipment and that such testing ensures the equipment is capable of performing its safety function prior to return to service, the staff concludes the licensee has acceptably satisfied the actions requested by Item 3.1.1 of Generic Letter 83-28. Accordingly, this item is closed.

Based on the licensee's review of Westinghouse guidance on post-maintenance operability testing, and the licensee's determination that facility procedures include, or are being revised to include, the guidance required to demonstrate post-maintenance operability of the reactor trip system, the staff concludes the licensee has acceptably satisfied the actions requested by Item 3.1.2 of Generic Letter 83-28. Accordingly, this item is closed.

Date:

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