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PGE Portland General Electric Company

Charles Goodwin, Jr. Assistant Vice President

June 9, 1980

Trojan Nuclear Plant
Docket 50-344
License NPF-1

Mr. R. H. Engelken, Director
U. S. Nuclear Regulatory Commission
Region V
Suite 202, Walnut Creek Plaza
1990 N. California Blvd.
Walnut Creek, CA 94596

Dear Sir:

Attached is our response to IE Bulletin 80-12 pertaining to review and analyses of decay heat removal loss events. As indicated, we have reviewed our systems and procedures and verified that all reasonable means will be taken to provide redundant or diverse means of decay heat removal during all modes of Plant operation.

Sincerely,

C. Goodwin, Jr.
Assistant Vice President
Thermal Plant Operation and
Maintenance

CG/DRS/4sa4B1
Attachment

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

Director
Office of Inspection and
Enforcement
U. S. Nuclear Regulatory Commission

121 S.W. Salmon Street, Portland, Oregon 97204

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PORTLAND GENERAL ELECTRIC COMPANY

Response to IE Bulletin 80-12

1. Review the circumstances and sequence of events at Davis-Besse as described in Enclosure 1.

   Response

   The circumstances and sequence of events of DHR degradation at Davis-Besse as described in IE Information Notice 80-20 have been reviewed.

2. Review your facility for all DHR degradation events experienced, especially for events similar to the Davis-Besse incident.

   Response

   The Trojan operational experience for all instances of DHR degradation [i.e., complete loss of both trains of the Residual Heat Removal (RHR) System] has been reviewed. Several instances of temporary DHR degradation for short time periods have occurred and have been previously reported to the NRC in accordance with the reporting requirements of the Technical Specifications.

3. Review the hardware capability of your facility to prevent DHR loss events, including equipment redundancy, diversity, power source reliability, instrumentation and control reliability and overall reliability during the refueling and cold shutdown modes of operation.

   Response

   The hardware capability of the Trojan Nuclear Plant to prevent DHR loss events during the cold shutdown and refueling modes of operation has been reviewed. In these modes, the reactor coolant pumps are shut down and the Reactor Coolant System (RCS) circulation and decay heat removal functions are performed by the RHR system. Equipment redundancy is afforded by two normally operable RHR loops. Technical Specifications require at least one operable RHR loop.

   In the cold shutdown mode, equipment diversity is afforded by two independent means. One means is provided by redundant auxiliary feedwater pumps and associated flow paths which could be made operable in the event both RHR loops become unavailable. Other means are provided by the safety injection pumps which can be aligned to circulate and cool reactor coolant from the RHR pump suction line via the RHR pumps and heat exchangers. In the refueling mode, equipment diversity is afforded by two normally operable Spent Fuel Pool cooling loops which can be aligned to recirculate and cool the refueling cavity water in the event both RHR loops become unavailable. The Spent Fuel Pool cooling loops can also be aligned to circulate reactor coolant from the RHR pump suction line to the refueling

water storage tank. Transfer from the refueling water storage tank to the RCS can be accomplished by the Chemical and Volume Control System charging pumps or safety injection pumps.

In the cold shutdown mode, two independent offsite and two independent onsite a-c electrical power sources with associated distribution systems are normally operable; also, both battery-backed d-c power and distribution systems are normally operable. As a minimum, Technical Specifications require at least one operable a-c/d-c power and distribution subsystem in both the cold shutdown and refueling modes of operation. Associated instrumentation and controls for maintaining and verifying RHR system operation would be operable. In general, electrical power and I&C systems have experienced a high reliability of operation at Trojan.

Based on the foregoing, existing equipment and systems are capable of providing adequate reliability against loss of DHR function in the cold shutdown and refueling modes of operation.

4. Analyze your procedures for adequacy of safeguarding against loss of redundancy and diversity of DHR capability.

Response

The procedures for safeguarding against loss of redundancy and diversity of the DHR capability have been analyzed and determined adequate (see our response to Item 7 below).

5. Analyze your procedures for adequacy of responding to DHR loss events. Special emphasis should be placed upon responses when maintenance or refueling activities degrade the DHR capability.

Response

The procedures for responding to DHR loss events have been analyzed and determined to be adequate for all modes of operation, including maintenance and refueling outages (see our response to Item 7 below).

6. Until further notice or until Technical Specifications are revised to resolve the issues of this Bulletin, you should:

   a. Implement as soon as practicable administrative controls to assure that redundant or diverse DHR methods are available during all modes of plant operation. (Note: When in a refueling mode with water in the refueling cavity and the head removed, an acceptable means could include one DHR train and a readily accessible source of borated water to replenish any loss of inventory that might occur subsequent to the loss of the available DHR train.)

   b. Implement administrative controls as soon as practicable, for those cases where single failures or other actions can result in only one DHR train being available, requiring an alternate means of DHR or expediting the restoration of the lost train or method.

Response

Adequate administrative controls exist to assure that redundant or diverse DHR methods are available during all modes of plant operation (see our response to Item 7 below).

7. Report to the NRC within 30 days of the date of this Bulletin the results of the above reviews and analyses, describing:

   a. Changes to procedures (e.g., emergency, operational, administrative, maintenance, refueling) made or initiated as a result of your reviews and analyses, including the scheduled or actual dates of accomplishment. [Note: NRC suggests that you consider the following: (1) limiting maintenance activities to assure redundancy or diversity and integrity of DHR capability, and (2) bypassing or disabling, where applicable, automatic actuation of ECCS recirculation in addition to disabling High Pressure Injection and Containment Spray preparatory to the cold shutdown or refueling mode.]

   b. The safeguards at your facility(ies) against DHR degradation, including your assessment of their adequacy.

Response

   a. Several changes to plant procedures were made to alert personnel to the need to have two redundant or diverse DHR methods available. These included the development of a procedure to provide backup core heat removal with the Reactor Coolant System open and the addition of precautionary notes in other procedures. Other than these changes, existing procedures and methods are adequate to insure that DHR capability is available.

   b. The response to Item 3 describes the various means of DHR during Modes 5 and 6 and we consider these to be adequate. During operation in other modes, redundant trains of auxiliary feedwater provide decay heat removal capability. Reactor Coolant System injection and letdown via the power-operated relief valves provide a diverse means of cooling in the unlikely event that auxiliary feedwater is unavailable.