



Portland General Electric Company

James E. Cross Vice President, Nuclear

December 21, 1990

Trojan Nuclear Plant  
Docket 50-344  
License NPF-1

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington DC 20555

Dear Sirs:

Response to Generic Letter 90-06, "Resolution of Generic Issue 70, 'Power-Operated Relief Valve and Block Valve Reliability', and Generic Issue 94, 'Additional Low-Temperature Overpressure Protection for Light-Water Reactors', Pursuant to 10 CFR 50.54(f)"

On June 25, 1990, the Nuclear Regulatory Commission (NRC) issued Generic Letter 90-06 in which licensees were required to respond as to the current plans relating to power-operated relief valves (PORVs) and block valves and to low-temperature overpressure protection.

Attached is PGE's detailed response to staff positions contained in Enclosures A and B to the generic letter, and proposed alternative measures. Also, as requested in the generic letter, the following specific items are noted:

1. PGE plans to incorporate Improvements 1, 2, and 3 in Section 3.1 of Enclosure A to the generic letter as described in Attachment A. With respect to Improvement 3, PGE plans to use the modified Limiting Conditions for Operation (LCO) for PORVs and block valves in the Technical Specifications for Modes 1, 2, and 3 contained in Attachment A-1 of Enclosure A for Westinghouse-designed plants with two PORVs, subject to the alternative measures described in Attachment A.
2. PGE will submit a License Change Application to request use of the modified Technical Specifications for Modes 5 and 6 for the Low-Temperature Overpressure Protection System as described in Attachment B-1 of Enclosure B for Westinghouse-designed plants, subject to the alternative measures described in Attachment B.

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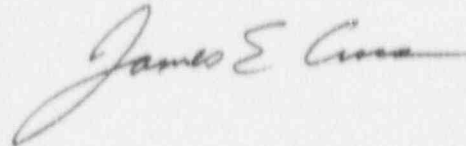
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With regard to the implementation schedule for these changes, GE takes no exception to the schedules recommended in the generic letter. As such, the measures taken in response to Items 2 and 3 of Enclosure A of the generic letter (as described in Attachment A) will be in place before the end of the 1991 Refueling Outage (the first refueling outage that starts 6 months or later from the date of the generic letter). Requests for Technical Specification changes outlined in this response will also be submitted to the NRC before the end of the 1991 Refueling Outage. Changes to operating instructions to minimize time in water-solid conditions (as described in Attachment B) will be in place prior to the cooldown for the 1991 Refueling Outage.

Sincerely,



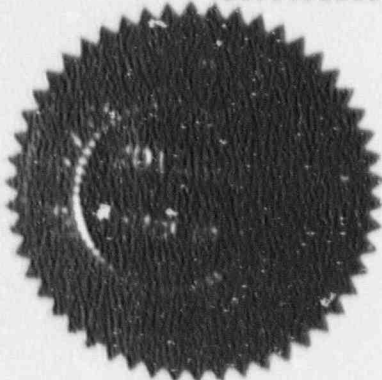
Attachments

c: Mr. John B. Martin  
Regional Administrator, Region V  
U.S. Nuclear Regulatory Commission

Mr. David Stewart-Smith  
State of Oregon  
Department of Energy

Mr. R. C. Barr  
NRC Resident Inspector  
Trojan Nuclear Plant

Subscribed and sworn to before me this 21st day of December 1990.



Diana M. Boursaw  
Notary Public of Oregon

My Commission Expires: March 22, 1994

PORTLAND GENERAL ELECTRIC COMPANY (PGE) RESPONSE TO NUCLEAR  
REGULATORY COMMISSION (NRC) POSITIONS OF ENCLOSURE A OF  
GENERIC LETTER 90-06, "STAFF POSITIONS RESULTING FROM  
RESOLUTION OF GENERIC ISSUE 70 - PORV AND BLOCK VALVE RELIABILITY"

NRC POSITION

1. Include power-operated relief valves (PORVs) and block valves within the scope of an operational quality assurance program that is in compliance with Title 10 of the Code of Federal Regulations, Part 50 (10 CFR 50), Appendix B. This program should include the following elements:
  - a. The addition of PORVs and block valves to the Plant operational Quality Assurance List.
  - b. Implementation of a maintenance/refurbishment program for PORVs and block valves that is based on the manufacturer's recommendations or guidelines and is implemented by trained Plant Maintenance personnel.
  - c. When replacement parts and spares, as well as complete components, are required for existing non-safety-grade PORVs and block valves (and associated control systems), it is the intent of this generic letter that these items may be procured in accordance with the original construction codes and standards.

PGE Response

1. a. The PORVs and block valves are currently on the Trojan Safety-Related List, a computerized database of safety-related equipment.
- b. Maintenance and refurbishment to PORVs and block valves is accomplished by Plant Maintenance personnel who have general training in valve maintenance and refurbishment, using approved work instructions which reference manufacturer's recommendations and guidelines (e.g., vendor technical manuals and vendor drawings).
- c. Parts, components, and spares are procured under applicable quality requirements in accordance with Trojan procedures governing safety- or quality-related equipment.

NRC POSITION

2. Include PORVs, valves in PORV control air systems, and block valves within the scope of a program covered by Subsection IWV, "Inservice Testing of Valves in Nuclear Power Plants", of Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure

Vessel Code. Stroke testing of PORVs should only be performed during Mode 3 (HOT STANDBY) or Mode 4 (HOT SHUTDOWN) and in all cases prior to establishing conditions where the PORVs are used for low-temperature overpressure protection. Stroke testing of the PORVs should not be performed during power operation. Additionally, the PORV block valves should be included in the licensee's expanded motor-operated valve (MOV) test program discussed in NRC Generic Letter 89-10, "Safety-Related Motor-Operated Valve Testing and Surveillance", dated June 28, 1989.

#### PGE Response

2. The PORVs and block valves are included within the scope of the program covered by Section XI of the ASME Boiler and Pressure Vessel Code. PGE-1048, "Inservice Testing Program for Pumps and Valves Second Ten Year Interval", currently includes the Pressurizer PORVs (PCV-455A and PCV-456), the check valves in the Instrument Air lines for the PORV control air system (IA-2001 thru IA-2004), and the PORV block valves (MO-8000A and MO-8000B). Stroke testing of the PORVs will be conducted during Mode 3 or 4 (with the block valves closed), prior to establishing conditions where the PORVs are used for overpressure protection. The PORVs may also be cycled in Modes 5 and 6 to return a valve to service following maintenance or repair. The PORVs will not be stroke tested during power operation. The block valves are included within the scope of the Generic Letter 89-10 test program.

The Instrument Air System and individual solenoid valves in the PORV control air system are not included in the Inservice Testing (IST) Program. The PORVs require air pressure to open and their fail safe position is closed. There are two in-series solenoid valves in the instrument air supply lines to each PORV. These solenoid valves simultaneously align, directing air to the PORV actuator when the open control signal is given, and realign porting air from the PORV actuator when the closure control signal is given. Failure of either solenoid valve in the position facilitating PORV closure would render that PORV unable to operate, i.e., stroke to the open position. This failure mode would be detected during testing. Failure of either solenoid valve in the position facilitating the PORV open position would not render the PORV inoperable if the remaining solenoid valve operates properly. This failure mode, if affecting only one of two solenoid valves, would not be detected in testing.

The intention of the IST Program is to test components to assure their operational readiness to perform a specific function in bringing the Plant to cold shutdown or in mitigating the consequences of an accident. By testing PCV-455A and PCV-456, adequate assurance is provided that these two valves will perform their designated safety function. The IST Program does not test the individual redundant solenoid valves involved in actuating the major component.

NEC POSITION

3. For operating pressurized water reactor (PWR) plants, modify the Limiting Conditions for Operation (LCO) of PORVs and block valves in the Technical Specifications for Modes 1, 2, and 3 to incorporate the position adopted by the staff in recent licensing actions. Attachments A-1 through A-3 are provided for guidance. The staff recognizes that some recently licensed PWR plants already have Technical Specifications in accordance with the staff position. Such plants are already in compliance with this position and need merely state that in their response. These recent Technical Specifications require that plants that run with the block valves closed (e.g., due to leaking PORVs) maintain electrical power to the block valves so they can be readily opened from the control room upon demand. Additionally, Plant operation in Modes 1, 2, or 3 with PORVs and block valves inoperable for reasons other than seat leakage is not permitted for periods of more than 72 hours.

PGE Response

3. Proposed Technical Specifications are identified in this attachment as a mark-up of Attachment A-1 to Enclosure A of the generic letter (see Pages 4 and 5). Several items should be noted regarding these proposed revisions.

First, PGE does not regard the automatic operation of PORVs to provide Reactor Coolant System overpressure protection as a safety function. Redundant safety-related relief valves are provided at Trojan for this purpose. As such, the inability of a PORV to automatically open should not be viewed in the same light as manual operation. The associated Bases Section for the attached proposed Technical Specification revisions, will be revised to reflect this position.

Second, Surveillance Requirement 4.4.4.1.b will be accepted unmodified, even though the check valves on associated air accumulators are already covered under Specification 4.0.5. Additionally, Plant procedures will be modified to include testing of the solenoid air control valves at least once per 18 months.

Lastly, Trojan's PORVs and block valves are powered from emergency buses. As such, Surveillance Requirement 4.4.4.3 is unnecessary and will not be included in the revised Technical Specification to be submitted.

Enclosure A to Generic Letter 90-06

Attachment A-1

Modified Standard Technical Specifications  
for Combustion Engineering and Westinghouse Plants

REACTOR COOLANT SYSTEM

3/4.4.4 RELIEF VALVES

LIMITING CONDITION FOR OPERATION

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The following is to be used when two PORVs are provided:

3.4.4 Both power-operated relief valves (PORVs) and their associated block valves shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

- a. With one or both PORVs inoperable because of excessive seat leakage, within 1 hour either restore the PORV(s) to OPERABLE status or close the associated block valve(s) with power maintained to the block valve(s); otherwise, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- b. With one PORV inoperable due to causes other than excessive seat leakage, within 1 hour either restore the PORV to OPERABLE status or close its associated block valve and remove power from the block valve; restore the PORV to OPERABLE status within the following 72 hours or be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- c. With both PORVs inoperable due to causes other than excessive seat leakage, within 1 hour either restore at least one PORV to OPERABLE status or close its associated block valve and remove power from the block valve and be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- d. With one or both block valves inoperable, within 1 hour restore the block valve(s) to OPERABLE status or place its associated PORV(s) in manual control. Restore at least one block valve to OPERABLE status within the next hour if both block valves are inoperable; restore any remaining inoperable block valve to operable status within 72 hours; otherwise, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

- e. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.4.4.1 In addition to the requirements of Specification 4.0.5, each PORV shall be demonstrated OPERABLE at least once per 18 months by:

- a. Operating the PORV through one complete cycle of full travel during MODES 3 or 4, and
- b. Where applicable, operating solenoid air control valves and check valves on associated air accumulators in PORV control systems through one complete cycle of full travel for plants with air-operated PORVs, and
- c. Performing a CHANNEL CALIBRATION of the actuation instrumentation.

4.4.4.2 Each block valve shall be demonstrated OPERABLE at least once per 92 days by operating the valve through one complete cycle of full travel unless the block valve is closed in order to meet the requirements of ACTION b, or c in Specification 3.4.4.

~~4.4.4.3 The emergency power supply for the PORVs and block valves shall be demonstrated OPERABLE at least once per 18 months by:~~

- ~~a. Manually transferring motive and control power from the normal to the emergency power bus, and~~
- ~~b. Operating the valves through a complete cycle of full travel.~~

WESTINGHOUSE PLANTS

PORTLAND GENERAL ELECTRIC COMPANY (PGE) RESPONSE TO  
NUCLEAR REGULATORY COMMISSION (NRC) POSITIONS OF  
ENCLOSURE B OF GENERIC LETTER 90-06, "STAFF POSITIONS  
RESULTING FROM RESOLUTION OF GENERIC ISSUE 94 - ADDITIONAL  
LOW-TEMPERATURE OVERPRESSURE PROTECTION FOR LIGHT-WATER REACTORS"

Proposed Technical Specifications for the Low-Temperature Overpressure Protection System are identified in this attachment as a mark-up of Attachment B-1 to Enclosure B of the generic letter (see Pages 3 and 4).

Analyses have been conducted of the capabilities and limitations of the Low-Temperature Overpressure Protection System at Trojan. The results of these analyses are reflected in the attached mark-up to Attachment B-1 to Enclosure B. Other changes noted in the attached Technical Specification revisions are provided for clarification or for consistency with current terminology used in the Trojan Technical Specifications (TTS).

In response to the guidelines in the generic letter, PGE also reviewed the implementation status of the administrative controls and procedures identified in Section 1 of Enclosure B to the generic letter. These items as identified in the generic letter enclosure included the following:

1. Minimize the time the RCS is maintained in a water-solid condition.
2. Restrict the number of high-pressure safety injection pumps operable to no more than one when the RCS is in the Low-Temperature Overpressure condition.
3. Ensure that the steam generator to RCS temperature difference is less than 50°F when the reactor coolant pump (RCP) is being started in a water-solid RCS.
4. Set the power-operated relief valve (PORV) setpoint (if the particular Plant relies on this component for Low-Temperature Overpressure Protection) to a Plant-specific analysis supported value, and have surveillance that checks the PORV actuation electronics and setpoints.

TTS Limiting Condition for Operation Sections 3.5.3.2, 3.4.1.4, and 3.4.9.3 incorporate Items 2, 3, and 4, respectively. It should be noted that with respect to Item 2, Trojan's current Low-Temperature Overpressure System analysis (which assumes water-solid initial conditions) allows operation of one or more high-head charging pumps in lieu of or in combination with a safety injection pump under certain RCS temperature conditions. Therefore, a proposed TTS change delineating the number and type of high-head pumps allowed, based on the aforementioned analysis, will also be submitted along with the attached changes.



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With respect to Item 1, Trojan does not currently have administrative controls or procedures to minimize the time the RCS is maintained in a water-solid condition. Changes to operating instructions will be made to minimize time in water-solid conditions prior to the cooldown for the 1991 refueling outage.

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Generic Issue 94

Enclosure B to Generic Letter 90-06

Attachment B-1

Modified Technical Specifications  
for Combustion Engineering and Westinghouse Plants

REACTOR COOLANT SYSTEM

OVERPRESSURE PROTECTION SYSTEM

LIMITING CONDITION FOR OPERATION

3.4.9.3 Two power-operated relief valves (PORVs) shall be OPERABLE with lift settings of less than or equal to ~~[450]~~ psig. 440 and 490 psig.

APPLICABILITY: <sup>290</sup>↑ MODE 4 when the <sup>or</sup> temperature of any RCS cold leg is less than or equal to ~~[275]~~°F, MODE 5, and MODE 6 when the ~~head is on the reactor vessel~~ and the RCS is not vented through a 3.4 square inch or larger vent.

ACTION:

and

- a. With one PORV inoperable in MODE 4, restore the inoperable PORV to OPERABLE status within 7 days or depressurize and vent the RCS through at least a 3.4 square inch vent within the next 8 hours.
- b. With one PORV inoperable in MODES 5 or 6, either (1) restore the inoperable PORV to OPERABLE status within 24 hours, or (2) complete depressurization and venting of the RCS through at least a 3.4 square inch vent within a total of 32 hours.
- c. With both PORVs inoperable, complete depressurization and venting of the RCS through at least a 3.4 square inch vent within 8 hours.
- d. With the RCS vented per ACTIONS a, b, or c, verify the vent pathway *is open* at least once per 31 days when the pathway is provided by a valve(s) that is locked, sealed, or otherwise secured in the open position; otherwise, verify the vent pathway every 12 hours.
- e. In the event either the PORVs or the RCS vent(s) are used to mitigate an RCS pressure transient, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 5.9.2 within 30 days. The report shall describe the circumstances initiating the transient, the effect of the PORVs or RCS vent(s) on the transient, and any corrective action necessary to prevent recurrence.
- f. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.4.9.3 Each PORV shall be demonstrated OPERABLE by:

- a. Performance of an ~~ANALOG CHANNEL OPERATIONAL TEST~~, but excluding valve operation, at least once per 31 days; and
- b. Performance of a CHANNEL CALIBRATION at least once per 18 months; and
- c. Verifying the PORV isolation valve is open at least once per 72 hours.

12. Performance of a CHANNEL FUNCTION TEST, but excluding valve operation\*, within 31 days prior to entering a condition in which the PORV is required OPERABLE and at least once per 31 days. Thereafter when the PORV is required OPERABLE.

\* Valve operation is excluded by placing the Block/Unblock control switch in the BLOCK position.