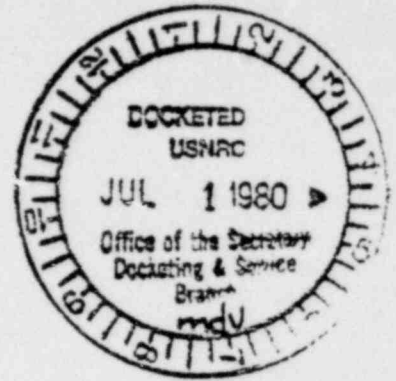




Portland General Electric Company

Charles Goodwin, Jr. Assistant Vice President



June 27, 1980

Trojan Nuclear Plant  
Docket 50-344  
License NPF-1

DOCKET NUMBER PR-50 (16)  
PROPOSED RULE (45 FR 36082)

Secretary of the Commission  
ATTN: Docketing and Service Branch  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Dear Sir:

On May 29, 1980, the NRC issued a Federal Register Notice regarding a proposed rule entitled "Fire Protection Program for Nuclear Power Plants Operating Prior to January 1, 1979". This proposed rule will add a new Section 50.48 and Appendix R to 10 CFR 50. We have reviewed the NRC proposed rule and submit the attached comments for your use and consideration.

In general, the proposed rule is far too vague for effective implementation. There is a significant lack of definitions and the usage of many terms is such that it is not clear what is meant. Without additional clarification, the rule is subject to individual and various interpretations, both by regulatory agencies and licensees.

The proposed rule does not seem to realize the current status and development of fire protection knowledge and practice for industries in general. Fire protection has become highly sophisticated in its application to other industrial and commercial areas. Additionally, testing by National Laboratories and the Underwriters Laboratory has already established stringent and beneficial requirements for fire protection. The proposed rule does not appear to reflect this status.

The requirement to install an oil collection system for the reactor coolant pump lubrication system by November 1, 1980 is unreasonable and

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Acknowledged by card..... L.C. 7/1/80

Portland General Electric Company

Docketing and Service Branch

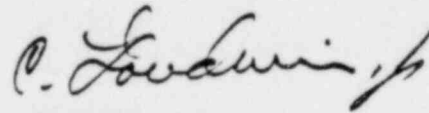
June 27, 1980

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will probably force PGE to request a waiver from that date. In order to meet the Seismic Category I requirements for such a system involves a great deal of engineering and construction effort. In light of the recent imposition of this requirement upon Trojan, it is highly unlikely that the November 1 date can be met.

Sincerely,



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

CG/KM/4sa7A12

Attachment

c: Mr. Robert A. Clark, Chief  
Operating Reactors Branch No. 3  
Division of Licensing  
U. S. Nuclear Regulatory Commission

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

Mr. P. C. Higgins  
Reactor Regulations  
Atomic Industrial Forum

ATTACHMENT

PGE Comments on the NRC Proposed Rule Change  
(10 CFR 50, Appendix R and 10 CFR 50.48)  
Regarding Fire Protection Program for Nuclear Plants

1. 10 CFR 50.48 (Page 16)

The new amendment Section 50.48, Fire Protection, states that Appendix R applies to plants operating prior to January 1, 1979 and requires modifications caused by this rule to be completed by November 1, 1980. With new items which may differ from previous SER requirements, this completion date is unreasonable, especially since the final version of the Appendix will not be available until at least mid July.

2. Section II.A - Fire Protection Program (Page 17)

This specifies the establishment of a fire protection policy for protection of structure, systems, and components important to safety. But the term "safety" is not defined. Past requirements were limited to "safe shutdown." If safety is to mean all nuclear safety-related systems, then systems necessary to mitigate accidents would be included. This expansion could make compliance by November 1, 1980 impractical, if not impossible.

3. Section II.A - Fire Protection Program (Page 17)

This section states that the fire protection program at each plant shall be under the direction of an individual delegated authority commensurate with the responsibility of the position and shall be knowledgeable in both fire protection and nuclear safety. No explanation of, or measure for "knowledgeable" is given. No credit is given for anyone who may be expert in one area and supported by experts in the other. There are few, if any, people available either onsite at plants, in utility corporation offices, in consulting and engineering firms or in regulatory agencies that are truly knowledgeable in both fire protection and nuclear safety. This may result in a formalized operator-type training to meet the intent of this requirement, unless the term knowledgeable is clearly defined.

4. Section II.A.1 - Fire Prevention (Page 18)

This paragraph states that in situ fire hazards shall be minimized by plant design and plant arrangement, yet this document pertains to operating plants where "design and arrangement" are fixed. This could and should be a major consideration for plant modification and should be worded to address plant modification not original design.

5. Section II.A.2 - Fire Protection, Suppression, and Containment

This section refers on numerous occasions to "large fire hazards" without defining this term. For grouped electrical cables (and to a lesser extent other systems and equipment), little or no consensus exists as to what a "large" hazard is.

The Section II.A.2.e indicates that "automatic suppression systems shall be provided to control large fire hazards or to protect redundant systems or components important to safe shutdown." This requirement does not allow credit for manual suppression in safety-related areas where combustible loadings are insufficient to warrant sprinkler or deluge systems. Definition of "redundant system" is needed, since it may be interpreted as all control and power cables associated with a redundant safety system. The term "important to safe shutdown" also needs to be defined to avoid additional fire hazard analysis of areas containing equipment not previously identified as necessary for safe shutdown.

Paragraph II.A.2.g refers to a rating that "exceeds the duration of the in situ fire load by at least one-half hour." This is a technically incorrect assessment of fire development and growth and should be deleted. Fire duration and intensity are controlled by far more parameters than fire load. Fuel configuration, fuel surface area and room ventilation rate are often more critical in determining the time-temperature history of an enclosure than merely the total amount of fuel.

6. Section II.A.3 - Alternate Shutdown Capability (Page 19)

This section and Table 1 on Page 25 require that when safe shutdown cannot be ensured by barriers, detection and suppression systems, an alternate shutdown capability shall be provided. The interpretation of the word "ensure" may determine if both fire suppression and alternate shutdown capability are required. This statement should be interpreted as not requiring alternate shutdown capability if adequate fire protection systems are provided.

7. Section II.B - Loss of Offsite Power (Page 20)

This paragraph implies that fire detection and suppression systems must function either only with offsite power or only without offsite power. The intent is that these systems be reliably powered to work even with the loss of offsite power, and the paragraph should be reworded as such.

8. Section II.D - Access for Manual Fire Fighting (Page 20)

This requirement references "effective functioning of the fire brigade," but nowhere in Appendix R is guidance given on what access is required for "effective" fire brigade operations. With the emphasis on fixed systems for areas with "poor" access, better definition of "good access" and "effective functioning" should be given.

9. Section II.E - Fire Hazard Analysis (Page 20)

It is stated that "separation of redundant systems and components by" 50 ft. of clear air space or a 3-hr. rated fire barrier is adequate, but no objective is stated, i.e., adequate for what situation?

"Adequacy of fire protection" in the first sentence should include physical separation of redundancy and fire detection and suppression as outlined in II.A.2. However, this paragraph implies that regardless of the provisions of other protection and regardless of other requirements in this rule, separation of redundant components by 3-hr. walls or a 50-ft. clear space alone is sufficient protection. This is inconsistent and confusing, and should be deleted if early detection and adequate automatic and/or manual fire suppression is provided.

Furthermore, Note 2 in Table 1 on Page 25 indicates that 10-ft. horizontal and vertical separation is adequate. Confusion seems to exist as to whether 10 or 50 ft. are the required distances, and clarification should be provided.

10. Section III.A - Fire Water Distribution System (Pages 20-21)

This section requires two separate redundant suction from a large body of water. This is unrealistic and overly restrictive for plants using one large intake structure on a lake or river for all water requirements. Current Technical Specifications limiting conditions of operation address loss of fire protection water supply in the unlikely event of loss of all pumps or intake structure failure. This current approach is sufficient and is far more cost-effective.

This section also limits the means of storage of fire water to dedicated tank or a vertical standpipe in a shared tank. This is overly restrictive since there are numerous other ways to assure a dedicated supply such as weirs, suction location, etc. This should be stated as an objective to assure a dedicated fire water supply leaving the method of accomplishment to competent design engineers.

The statement, "other water systems used as a fire water supply shall be permanently connected to the fire main system and shall be capable of automatic alignment to the fire main system" appears unnecessary. It would seem sufficient to provide "a fire water supply capable of being connected to the fire main system within 10 min. of the loss of the normal water supply or pumps." If alternate pumps are used, they probably do not meet the exact requirements of the fire pumps. A fire simultaneous with loss of both the electric and diesel-driven fire pumps must be postulated to require use of additional pumps. This seems excessive.

11. Section III.B - Sectional Control Valves (Page 21)

This section requires indicating valves such as Post Indicator Valves (PIVs). This is a good practice but is not always practical. Often valves do not end up in a position where a post sticking out of the ground is possible. This paragraph would require the replacement of key operated valves in the middle of streets or sidewalks to be replaced. This is unnecessary if an adequate outage program and surveillance plan as required by the NRC is implemented.

12. Section III.D - Manual Fire Suppression (Page 22)

Section III.D requires at least one effective hose stream be able to reach any location containing safety-related equipment or could present an exposure hazard to safety-related equipment. It appears that the new requirement makes no distinction between fire water standpipes inside Containment and other in-Plant standpipes. For existing facilities, this new requirement appears unrealistic.

13. Section III.G - Protection of Safe Shutdown Capability (Pages 22-25)

Table 1, which is referenced in this section, is vague and confusing. Questions such as what is good or poor accessibility, where did the 10-ft. separation come from, what is a large concentration of cables, make this table difficult to interpret.

14. Section III.H - Fire Brigade (Page 24)

The statements in the introductory paragraph are excessively restrictive on brigade member qualifications. This requires physicals more frequently than that required for safe shutdown considerations. It also requires at least two brigade members, in addition to the brigade leader be "knowledgeable" of plant safety systems which is later implied as being "evidenced by possession of an operator's license." We agree that knowledgeable, experienced personnel are essential to perform the fire brigade tasks; however, the requirement of an Operating License is unnecessary and should not be stated as a requirement. Furthermore, the restrictive implementation schedule of November 1, 1980 will make this requirement extremely difficult, if not impossible, to satisfy due to a limited number of licensed operators at the Plant site and the length of time required to train and qualify an individual and obtain an operator's license.

15. Section III.I - Fire Brigade Training (Pages 26-32)

Paragraph 3.d requires a drill every 3 yr. which needs to be critiqued by a qualified individual independent of the Licensee's staff. No definition of "qualified" is offered. This critique is normally conducted by us as a part of our performance of a Triennial Audit required by the Administrative Section of the Technical Specification. There should be no need to submit this written report to the NRC. Such reports are kept onsite for the I&E inspector to review.

16. Section III.K - Administrative Controls (Page 32-37)

Paragraph 5 states that welding permits shall be valid for not greater than 24 hr. Practically, a more effective method would be to designate a start and completion date, authorized by the worker's supervisor, for any authorized cutting, welding, grinding or open flame work permit. Requiring a 24-hr. validation appears unrealistic because of the additional time required to process the additional work permits or extensions for continuous work requiring more than 24 hr.

Paragraph 8 requires that "...all combustible materials shall be removed from the area immediately following the unpacking. Combustible material shall not be left unattended during lunch breaks, shift changes or other similar periods." The requirement to remove combustible materials prior to lunch breaks appears excessive and unrealistic.

Paragraph 12.a refers to fire-fighting procedures. This is an improper term for describing pre-fire plans. These plans are informational training and reference documents, not rigid procedures. Rigid procedures would be counterproductive since it would be impossible to include all the decision options and cause-consequence information in a procedure. This section should be changed to pre-fire plans.

Paragraph 12.c specifies that the fire-fighting strategies be designated to "Most favorable direction from which to attack a fire in each area in view of the ventilation direction, access hallways, stairs and doors which are most likely to be fire-free and the best station or elevation for fighting the fire. All access and egress routes that involve locked doors should be specifically identified in the procedure with the appropriate precautions and methods for access specified." The value of such a detailed procedure is questionable, since Plant familiarity is a requirement for Plant operators and security personnel, and certainly members of the fire brigade. Considering the large number of fire areas, many of which do not have more than one access path, there is little benefit in analyzing ventilation direction or alternate attack paths. Upon notification of a fire, the control operator will generally isolate those ventilation systems affecting the fire area. Floor elevation numbers and exit signs have been labeled on all stairwell doors to facilitate access by responding outside fire companies. Plant personnel will accompany offsite fire-fighting personnel at all times to aid in equipment location and access and egress.

Paragraph 12.h includes "Ventilation system operation that ensures desired plant pressure distribution when the ventilation flow is modified for fire containment or smoke clearing operations." This requirement does not differentiate between portable fire-fighting ventilation systems or permanent ventilation systems. Pressure distribution will most likely change during any additional ventilation system operation. Emphasis should be that pressure fluctuations will not violate the controlled Plant areas and will maximize personnel habitability.

17. Section III.L - Alternate Shutdown Capability (Pages 37-39)

Paragraph 1 requires that "the design for such alternate shutdown capability shall accommodate postfire conditions where offsite power is available and where offsite power is not available for 72 hours." Since the loss of offsite power concurrent with a fire is not presently a design requirement, this statement should change only the conditions when offsite power is available.

Paragraph 2 states that the shutdown capability for each fire area shall be able to . . . "achieve and maintain hot standby conditions for a PWR for at least 72 hours, achieve cold shutdown conditions within 72 hours and maintain cold shutdown conditions thereafter." However, no time requirements have previously been placed on the changing of modes from hot standby, to hot shutdown to cold shutdown conditions. This requirement appears restrictive, perhaps forcing older operating plants to undergo costly modifications which are unnecessary.

The operator should be allowed to choose the safest mode of operation for the particular equipment he has available. Also, it is not totally clear in the above statement whether cold shutdown needs to be achieved within 72 hr. of occurrence or 144 hr. Clarification needs to be provided to evaluate the actual intent of these requirements.

This section also addresses the number of operating personnel to be maintained onsite. This is a Plant specific item which is addressed in sufficient detail in the Technical Specifications and need not be included here.

18. Section III.M - Fire Barriers (Pages 39-40)

This paragraph requires fire resistance equivalent to metal lath and plaster which is all but extinct in modern construction practices. Materials like concrete and spray-on fibrous or cementitious coverings have proven to be more cost-effective in most cases. It is unclear what the intent of this equivalence is. . . mechanical stability, wear resistance, fire resistance, free leachable chlorides, etc?

Paragraph 4 states that "Equipment and systems used prior to 72 hr after the fire should be capable of being powered by both onsite and offsite electrical power systems, or by onsite power systems that are independent of the onsite and offsite electrical power systems; equipment and systems used after 72 hr may be powered by offsite power." This requirement needs clarification of terminology (does this mean that the ECCS and Fire Protection System must be able to operate without onsite and offsite power for 72 hr.?).

19. Section III.N - Fire Barrier Penetration Seal Qualification (Pages 40-42)

Paragraph 2 introduces two problems: (1) work case configurations, and (2) test extrapolation to walls. First, there is no consensus what "worst case" is regarding number and size of cables, penetration size, etc. Much more testing is required to determine these trends. Current ad hoc tests provide too little data to make the qualified judgements. Secondly, although it is common practice at UL to accept a floor test as equally suitable for walls, that assumption is not accurate. The shear stresses and bending moments in a wall penetration with horizontal cable penetration are far



greater than those in a floor. It is unsafe to assume that all materials which pass a floor seal test will pass a wall test using the same supporting mechanism.

Paragraph 4 states that fire barriers shall be tested in both directions, but it should say fire penetration seals instead.

Paragraph 5 states fire barriers shall be tested at positive pressure. It is assumed that this means penetration seals. In any case, this is overly restrictive since no other components in that barrier are tested under positive pressure. Walls, floors, doors and dampers are all tested at slightly negative pressure. The NRC is making far too great a problem of cable penetration seals. Tests around the world (including those at positive pressure in Belgium and Holland) show that virtually any noncombustible material stuffed into the cable opening will prevent the spread of fire. NRC's attention would be better focused on other aspects of testing where greater problems exist.

20. Section III.0 - Fire Doors (Pages 42-43)

This paragraph requires surveillance requirements which are counter-productive. The requirements for locking or alarming doors is fine for those vital areas identified by security but not for all Plant fire doors. No distinction is made for fire door ratings or locations in this section. Such a restrictive requirement will inevitably lead to reducing the number of identified surveilled fire doors to an absolute minimum, thereby reducing the effectiveness of the overall fire protection program. This paragraph would require all rated stairway doors to be locked or alarmed which would be counter-productive to both normal Plant operations and life safety. This section also states that "Areas protected by automatic total flooding gas suppression system should have electrically supervised self-closing fire doors." However, there is no existing requirement for areas protected by total flooding Halon systems to have self-closing fire doors. Considering the existing electrical supervision and the various administrative controls, including locked doors, as part of the security plan and frequent security patrols, existing requirements appear sufficient.

21. Section III.P - Reactor Coolant Pumps (Pages 43-44)

This section requires oil collection systems or suppression systems to withstand the Safe Shutdown Earthquake. This is a new requirement for operating plants, which, although good in principle, is not practical to implement by November 1, 1980. This provision also does not consider failure of which parts of the oil collection system would lead to fire. If the failure is limited to a portable or fixed tank at floor level which does not expose any safety-related equipment and which is not exposed to ignition sources such as hot reactor coolant lines, the affect on the Plant would be negligible. Since this requirement could be very costly it should be clarified and limited based on fire potentials.

Futhermore, the oil collection system components are required to be designed such that should an SSE occur, falling parts will not damage the operability of safety-related equipment in the same area. As noted in Appendix A to SRP 9.5.1, a fire does not have to be considered simultaneous with an SSE; therefore, the above requirement is unrealistically conservative, the mutual occurrence probability is extremely small.