

2. The pressurizer heaters do perform critical functions identified in 10 C.F.R. Part 100, Appendix A, Section III(c). Physical integrity of the heaters is required to preserve the "integrity of the reactor coolant pressure boundary." Post-accident decay heat removal via the natural circulation mode is a function required and is normally achieved by and is specified in the Emergency Operating Procedures to be performed by the pressurizer heater system. Bridenbaugh/Minor Affidavit, Ex. 2, at pp. 2-3; Bridenbaugh/Minor Contention 10 Testimony, Ex. 3, at p. 8.

3. Pressurizer heaters are normally utilized in controlling reactor pressure while bringing the plant to cold shutdown. Bridenbaugh/Minor Affidavit, Ex. 2, at p. 3.

4. Failure of the pressurizer heaters to operate would allow the reactor system to depressurize at essentially an uncontrolled rate unless additional equipment is brought into operation in a mode not normally utilized and which has not been clearly defined in the Emergency Operating Procedures. Id. at 3; Bridenbaugh/Minor Contention 10 Testimony, Ex. 3, at p. 10.

5. The pressurizer heater system is the normal system utilized by operators to control the primary reactor pressure. The pressurizer heaters have been designated as "important to safety" by the NRC Staff, they have been recommended to be upgraded in numerous NRC studies and reports, and are recognized as being of importance in reducing challenges to the other safety systems. Bridenbaugh/Minor Affidavit, Ex. 2, at p. 3; Bridenbaugh/Minor

Contention 10 Testimony, Ex. 3, at pp. 7-8, 12.

6. Two manual transfer switches with associated safety-related protective devices have been provided to connect the pressurizer heaters to on-site standby power supplies. They are not, however, operable from the control room as was recommended by the TMI Action Plan. In addition, the safety-related devices serve only to protect the onsite power system, rather than also protecting the pressure control function. Bridenbaugh/Minor Affidavit, Ex. 2, at pp. 3-4; Bridenbaugh/Minor Contention 10 Testimony, Ex. 3, at pp. 11-12.

7. Diablo Canyon has U-tube steam generators. The Applicant has not yet demonstrated, however, the adequacy of natural circulation through these steam generators at Diablo Canyon under adverse pressure control conditions. Bridenbaugh/Minor Affidavit, Ex. 2, at p. 4.

8. The fact of the high points of the coolant loops being normally covered with secondary coolant supplied by main or auxiliary feedwater systems does not, of itself, assure adequate cooling of the core under adverse conditions. Other systems must be operable, operator actions must not interfere with the system's necessary function, and conditions conducive to maintenance of natural circulation must be present. This has not been demonstrated at Diablo Canyon, nor have the Emergency

Operating Procedures been fully and adequately prepared to address this operating mode. Id.

9. The condensation of steam in the coolant loops with no loss of natural circulation has not been demonstrated at Diablo Canyon. Id.

10. If sufficient steam were present, reactor coolant conditions would change from single phase natural circulation to some two-phase mixture. If adequate cooling is provided, it would achieve a two-phase boiling condensation condition. Id. at 4-5.

11. Natural circulation could be blocked through U-tube steam generators if secondary cooling to the steam generators is inadequate. Id. at 5.

12. Natural circulation tests performed at the LOFT and Semiscale facilities have not been shown to be directly applicable at Diablo Canyon through actual demonstrations at that plant. Id.

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13. The safety classification of PORV's and block valves and their associated instruments and controls is not clearly defined in the FSAR for Diablo Canyon, nor is it clear what the Applicant means by its use of the term "important to safety" in responses to interrogatories on valve classification. Thus, there is no assurance that the valves are properly classified or qualified for their function. Bridenbaugh/Minor Affidavit, Ex. 2, at p. 5; Bridenbaugh/Minor Contention 12

Testimony, Ex. 4, at p. 5.

14. The PORV's and block valves are called upon in the Diablo Canyon Emergency Operating Procedures to perform functions related to insuring the integrity of the reactor coolant pressure boundary (both for low temperature over-pressure conditions and operating and accident conditions). However, contrary to our belief, the Applicant and Staff do not consider this as a safety function. Bridenbaugh/Minor Affidavit, Ex. 2, at p. 5; Bridenbaugh/Minor Contention 12 Testimony, Ex. 4, at pp. 5-7.

15. The functions of the PORV and block valves include the following:

- a. Maintain integrity of the primary pressure boundary.
- b. Provide pressure relief for Low Temperature Overpressurization conditions.
- c. Reduce the number of challenges to the safety valves.
- d. Reduce the number of challenges to the ECCS.
- e. Provide a bleed capability during the feed-and-bleed mode of operation to remove decay heat from the core (as, for example, was done during the TMI-2 accident).

Several of these functions are consistent with the functions in 10 C.F.R. Part 100, Appendix A, Section III.C, which is used by the NRC to define criteria for "safety-related" classification. However, the Applicant contends PORV's and block valves are not relied upon for safety functions. Bridenbaugh/Minor Affidavit, Ex. 2, at pp. 5-6; Bridenbaugh/Minor Contention 12 Testimony, Ex. 4, at pp. 4-5.

16. The block valves are used to isolate a PORV and may also be used to provide throttling capability for backup reactor coolant pressure control and for control of the bleed capability in the bleed-and-feed mode of heat removal following an accident. The Applicant does not consider these as safety functions; we disagree with this position. Bridenbaugh/Minor Affidavit, Ex. 2, at p. 6.

17. The accident at TMI-2 demonstrated that proper operation of PORV's and block valves can be important in mitigating the effects of an accident. These valves are also called upon in the Emergency Operating Procedures to provide a means for depressurizing the reactor coolant so that backup boration techniques may be applied. The EOP's also assume the PORV's will automatically open in an ATWS event, an event which could lead to a major accident although not presently recognized as a design basis event. Block valves are also used to mitigate and control a small LOCA resulting from a failed PORV. Despite these facts, the Applicant and Staff contend the block valves are not required to mitigate the consequences of a DBA. Bridenbaugh/Minor Affidavit, Ex. 2, at pp. 6-7; Bridenbaugh/Minor Contention 12 Testimony, Ex. 4, at pp. 5-7.

18. If a PORV failed, it would cause a small LOCA. If two or more failed due to a common-mode failure or systems interaction, the effects would be more severe. If the failure should occur simultaneously with a LOCA of other origin, it would

likely produce confusing symptoms and indications to the operator, release additional contaminated coolant to the containment, and could result in more severe consequences than a LOCA would otherwise produce. The Staff contends that the simultaneous LOCA and failure of a PORV would not significantly alter the consequences. We believe the impact could be significant. Bridenbaugh/Minor Affidavit, Ex. 2, at p. 7.

19. An unisolated, stuck-open PORV was the fundamental cause of coolant loss leading to core damage in the TMI-2 accident. Thus, it is impossible to assure that stuck-open PORV's at Diablo Canyon could not lead to core damage or other dangerous conditions. Only under the most ideal conditions (i.e., ignoring systems interaction, common-mode failures, operator error, and other system failures) could one assume no fuel damage will result from a stuck-open PORV. We feel this is an unreasonable assumption. Id. at 7-8.

20. The pressure trip settings for the PORV's are slightly lower than that of the safety valves in order to reduce the number of challenges to the code safety valves. We consider this to be a safety-related function but Staff apparently disagrees. Id. at 8.

21. Several Emergency Operating Procedures include descriptions of how the operators should go about searching for possible sources of coolant loss; specifically, they instruct operators, in several EOP's, to check for indications of leaking

or open PORV's. The operator would then be instructed to take corrective action, such as closing the block valve. If corrective action is not taken and there was continued leakage without make-up, the coolant pressure and level would drop and core cooling should be automatically initiated. If ECCS is not initiated or if operator action precludes the continued operation of a coolant source (as occurred at TMI-2), there is no assurance that proper core cooling will occur. Id. at 8; Bridenbaugh/Minor Contention 12 Testimony, Ex. 4, at pp. 5-6.

22. Although the operator can isolate a stuck-open PORV by utilizing the block valve, he must first recognize the necessary symptoms, properly diagnose the problem, and then take the proper action. As has been shown by the experience at TMI, these steps can not be assured when the operators have only partial or misleading information or are predisposed to look for a different causal event. Bridenbaugh/Minor Affidavit, Ex. 2, at pp. 8-9.

Respectfully submitted,

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January 14, 1982