Issue 84: CE PORVs (Rev. 2)

DESCRIPTION

This issue was raised by the ACRS in a memorandum[1] to the Commission in October 1983. Following the TMI-2 accident, the purpose and use of PORVs had been the subject of considerable analyses and discussion. The original purpose for which PORVs were installed was to prevent challenges to the spring-operated safety valves. However, plants designed by **W** and B&W sometimes rely on PORVs for depressurization in certain design basis events such as an SGTR. Another use of PORVs at some plants is to provide low temperature overpressure protection (Ltop). A more in-depth discussion on the use of PORVs in various modes of plant operations is provided in Issue 70.

At the time of this evaluation, all **W** and B&W PWRs had at least one PORV included in their designs. Older CE plants also had PORVs, but the newer CE designs did not include PORVs. The two groups of CE-designed

PWRs without PORVs were the 3410 MWt plants (San Onofre Units 2 and 3 and Waterford Unit 3) and the 3800 MWt plants (Palo Verde Units 1, 2, and 3, and other CE System 80 plants). Although Arkansas Nuclear One (ANO) Unit 2 also did not have a PORV, it was not part of this issue since a large, manually-actuated, vent valve installed on the ANO-2 pressurizer provided the unit with rapid depressurization capability.

The staff's review[2] of this issue in 1984 indicated that the existing CE plants without PORVs met regulatory requirements, but other considerations, primarily accident management for beyond design basis events and potential core-melt risk reduction, required further study. The events for which PORVs could prove to be of benefit were considered to have a low probability and the staff was not aware of any immediate safety concerns associated with the absence of PORVs in CE-designed plants. Therefore, a decision on CE PORVs was

deferred pending resolution of USI A-45.[3] In 1988, the staff resolved USI A-45 but did not explicitly address the PORV issue for the six operating plants outlined above. Following this outcome, the resolution of Issue 84 was pursued.

CONCLUSION

In resolving this issue, the staff considered two options: (1) conclude that no high capacity manual venting capability was needed; or (2) issue orders to all plants without PORVs requiring installation of primary system high capacity manual venting capability. The staff's regulatory analysis showed that Option 2 was not viable because of the high ORE associated with installation of high capacity venting and the potential negative effects of utilizing PORVs prone to leaking, sticking open, or other operational problems. Thus, Option 1 was selected

by the staff and forwarded to the Commission in SECY-90-232[4] after this position was supported by the ACRS.[5] Therefore, this issue was RESOLVED and no new requirements were established.

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[1] Letter to N. Palladino from J. Ray, "Need for Rapid Depressurization Capability in Newer Combustion Engineering, Inc. Plants," October 18, 1983. [8311010118]
[2] NUREG-1044, "Evaluation of the Need for a Rapid Depressurization Capability for CE Plant," U.S. Nuclear Regulatory Commission, December 1984.
[3] SECY-84-134, "Power Operated Relief Valves for Combustion Engineering Plants," U.S. Nuclear Regulatory Commission, March 23, 1984. [8404180339]
[4] SECY-90-232, "Evaluation of the Need for Primary System High Capacity Manual Venting Capability on Combustion Engineering (CE) Plants Without PORVs (GI-84)," U.S. Nuclear Regulatory Commission, June 28, 1990. [9007020274]
[5] Letter to K. Carr from C. Michelson, "Generic Issue-84, Combustion Engineering Plants without Power

Operated Relief Valves," June 12, 1990. [9006220172]