

15. Overpressurization

Minutes of 186th ACRS Meeting

Meeting Dates: October 9-11, 197

A. System Overpressurization

1. Zion 1 and 2

J. Dyer discussed violations of technical specifications at Zion, Units 1 and 2. The incidents similar in nature, occurred three months apart. The incidents occurred during cold shutdown. Upon isolation of the RHR System to replace a leaking suction relief in Unit 1 valve, the suction valve to the RHR was shut, isolating both the relief valve and the system letdown path. A centrifugal charging pump was not shut off, causing the RCS pressure to rise over a short period of time. In the Unit 1 incident on June 3, 1975, the pressure rose to 1100 psig within 10 minutes. The temperature was approximately 125 F. The pump was cut off and the pressure was reduced to 150 psig in 18 minutes. In the Unit 2 incident, which occurred on September 18, 1975, the pressure reached 1300 psig in 18 minutes during a surveillance test. A pressure switch, upon receiving a signal of 450 lbs pressure, properly closed the RHR suction valve, causing the equivalent situation as occurred in Unit 1. At the time, Zion procedures did not specify securing the charging pump during shutdown; they do now. He noted that if the pressure had reached the safety setting of the relief valves at the temperature involved, the NDT curves of the pressure vessel would have been exceeded (see Appendix XIX).

2. Trojan

J. Dyer discussed an incident at Trojan resulting from an inadvertent isolation of the let down path and the RHR System during hot functional testing. The isolation was caused by closure of the RHR suction valve with the charging pump still in operation. The peak pressure transient, which lasted 10-12 minutes, was not greater than 3360 psig. The incident was terminated when the charging pump stalled out because of the high discharge head. Room temperature was approximately 100 F. Inspections by the licensee revealed no visual damage or signs of stress. A successful hydrostatic test was completed the previous day at 3700 psig. A Westinghouse analysis of the transient has not been made available to the NCR Staff, yet.

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5. Overpressure Protection (Jamesport Nuclear Station - Open)

J. Cermak discussed Westinghouse's position on over pressure protection (see Appendix XXXVIII), noting that he believes this matter to be a new generic issue. He noted that while pressure/temperature limits are exceeded relative to the ASME code, reactor cooling system integrity is not adversely affected by an overpressure during the water solid condition and below relief valve settings.

F. Fluegge, NRC Staff, noted that seven instances of overpressurization transients, caused by single-operator error or equipment malfunction, have occurred since 1970. NRC Staff believes that this type of transient should be defined as an upset condition. Therefore, pressure/temperature limits for upset conditions are clearly defined in 10 CFR 50, Appendixes G and H. The NRC Staff also believes that modifications should be made to system designs to preclude exceeding the heat-up and cool-down rates specified in the technical specifications.

(Review of Zion Nuclear Station - Power Inc. - Open)

In answer to a question regarding two pressurization incidents over a short period of time, Tambling said that the Zion Station is making modifications to their primary water system to provide low pressure relief whenever the reactor is in cold shutdown. He noted that the Applicant began in July of 1975 to rewrite and review all operating procedures. These procedures are currently being tested. In addition, new procedures have been instituted following major maintenance work, which requires a double check on all valves and operating equipment and electric lineups.

In answer to a question regarding the solenoid valve failures, T. Tambling stated that the Applicant has committed to an accelerated surveillance program. In addition, new valves are being secured and installed.

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Minutes of 194th ACRS Meeting

Meeting Dates: June 3-5, 1976

*Review
of Zion
situation
(Open)*

There was some discussion regarding the number of incidents of operation outside limiting conditions and the NRC Staff was questioned as to whether the technical specifications might not be unduly tight. W. Higgins stated that it is the NRC Staff's view that it is possible to operate Zion Plant within the technical specifications.

Minutes of 195th ACRS Meeting

Meeting Dates: July 8-10, 1976

C. Overpressure Transients (Discussion with EDO - Closed Session)

M. Stello, NRC Staff, discussed the problem of overpressure transients in pressurized water reactor vessels. He noted that as a result of operator error, in certain instances, pressure has risen above that permitted in 10 CFR 50, Appendix G. He noted that licensees have been informed of the problems, and that the NRC Staff is requiring corrective action. Response from the utilities has been favorable. He noted that Babcock and Wilcox has already taken positive design steps to eliminate the problem. Discussions are being held with the vendors of plants currently in the construction and design phases. The main effort to date has concerned operating plants.

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