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U.S. Nuclear Regulatory Commission
Document Control Desk
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Perry Nuclear Power Plant
Docket No. 50-440
PSTC Evaluations

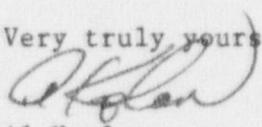
Gentlemen:

The PNPP Plant-Specific Technical Guidelines (EPG's incorporating plant-specific deviations) were reviewed by the NRC staff most recently in Supplement 8 to the Perry Safety Evaluation Report (SSER 8). The bases for this evaluation were (1) a Perry-specific "Procedure Generation Package" submitted by letter PY-CEI/NRR-0340 L dated September 11, 1985, and PY-CEI/NRR-0378 L dated October 29, 1985, and (2) Revision 3 of the Emergency Procedure Guidelines (EPG's), NEDO-24934 dated December 8, 1982.

The staff found the PNPP Plant-Specific Technical Guidelines acceptable, however the staff requested that further consideration be given to the topics of alternate shutdown cooling and secondary containment control; the attachment to this letter provides this information.

We are also committing to further review of the more recently issued Revision 4 to the EPG's regarding application of secondary containment controls to Perry, concurrent with implementation of these revised guidelines, which is scheduled for September 1990. The results of our review will be submitted for NRC information following completion of this review.

If you have any further questions, please feel free to call.

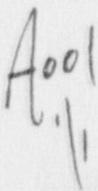
Very truly yours,

Al Kaplan
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Attachment

cc: T. Colburn
NRC Resident Office
U.S. NRC Region III



Evaluation of Perry EPG's for Alternate Shutdown Cooling and Secondary Containment Control

EPG Contingency No. 5 (SSER 8/13.5.2.2.1 text)

Contingency No. 5, Alternate Shutdown Cooling, is proposed to be deleted from the Perry plant-specific technical guidelines. The reason stated by the applicant for this deletion is that it may not be the appropriate action to take under conditions for which the main condenser is out of service and there is an unisolable break. However, it is our understanding that the applicant's alternate shutdown procedure is being retained in other plant procedures. Contingent on confirmation of this commitment, the staff finds the deletion from the emergency procedures acceptable on an interim basis. During the longer term, additional background material should be provided by the applicant to justify the deletion. Specifically, the applicant should

- (1) address the advantages and disadvantages of staying indefinitely at hot conditions with an unisolable leak versus proceeding to the Alternate Shutdown Procedure
- (2) clarify and discuss all the conditions under which the Alternate Shutdown Procedure would (or would not) be employed, and confirm that the operator entry conditions are clear in this regard

Response

This contingency has been deleted from the EPG's in Revision 4 (NEDO-31331, March 1987) based on considerable analysis and discussion within the BWR Owners Group, meetings with the NRC staff, and a favorable NRC Safety Evaluation on EPG Revision 4 (Thadani to Grace, September 12, 1988). The advantages and disadvantages of utilizing this particular method of alternate shutdown cooling were weighed in this process. Although this item has already been reviewed and approved, the following discussion highlights the major consideration in the final determination to delete this contingency from Revision 4. Implementing Alternate Shutdown Cooling under hot conditions at the point where the shutdown cooling interlocks clear (approximately 135 psig = 358°F) would involve discharging fluid through the SRV's which could then flash, causing damage to the SRV discharge piping. The preferred course of action for the majority of events requiring cooldown is to maintain the Pressure Control cooldown methods in use until normal shutdown cooling becomes available.

Therefore, Perry's deletion of Alternate Shutdown Cooling method from the Plant Emergency Instructions (PEI's) is consistent with the most recent symptomatic guidance in Revision 4 of the EPG's, and is considered the appropriate course of action at PNPP.

Perry has retained this Alternate Shutdown Cooling strategy in the Off Normal Instruction (ONI) for loss of shutdown cooling. Use of this Alternate Shutdown Cooling method is allowed in Modes 4 and 5 when temperature is below 200°F (to avoid flashing). The ONI makes it clear that this method is to be used in Mode 4 or 5, and only if other alternate methods are not available (i.e. RWCU, Main Condenser, FPCC).

Secondary Containment Control Guideline (SSER 8/13.5.2.2.1 text)

The applicant has proposed to delete this section of the guideline in its entirety. The purpose of this section, as stated in the generic EPG, is to protect equipment in the secondary containment and limit radioactivity release from the primary and secondary containments. The containment systems for Perry include a Mark III type containment structure as the primary containment and a secondary containment structure surrounding the primary containment. The annulus between the two containment structures is designed to confine the leakage of airborne radioactive materials from the primary containment. No essential equipment is located within the annulus. Because the Perry design accommodates the stated purpose of this portion of the generic guideline, the staff concurs with the applicant's position that a plant-specific guideline for secondary containment control is not necessary. However, during the longer term, the applicant should consider the applicability of selected portions of the Secondary Containment Control Guideline for events which involve leakage outside both containment structures.

Response

Appendix B of the Emergency Procedure Guidelines states that the purpose of secondary containment control is to (1) protect equipment in the secondary containment (2) limit radioactivity release to the secondary containment (3) maintain secondary containment integrity, and (4) limit radioactivity release from the secondary containment. This is accomplished through monitoring and control of secondary containment water (sump) level, temperature, and radiation level.

The specific EPG action steps in order of severity are (1) maximize cooling, (2) isolate systems discharging into secondary containment, (3) shut down the reactor, and (4) depressurize the RPV.

As identified in SSER 8, Perry's secondary containment consists of the concrete structure surrounding the primary containment and the annulus in between, which contains no critical safety equipment. The appropriate application of secondary containment control would be to Perry's Auxiliary Building.

The intent of most of the secondary containment control guidance is currently addressed at Perry, through a combination of design features, Technical Specifications, Off-Normal Instructions and Plant Emergency Instructions.

Design features include alarms associated with sump levels and alarms/isolation signals associated with room temperature, which when combined with Perry Technical Specifications, meet the intent of the secondary containment control guidelines for secondary containment water level and temperature. The Off-Normal Instruction for a high energy pipe break outside containment also addresses the water level and temperature guidelines by requiring that breaks be isolated; if the break cannot be isolated, it directs that the reactor be shutdown. The intent of the radiation level portion of the secondary containment control guidance is currently addressed by the Off-Normal Instruction for high radiation levels within the plant. This instruction provides appropriate actions to minimize the spread or release of radiation. Because Perry's Auxiliary Building is located outside both the primary and secondary containments, the radiation level guidance is also addressed by the Plant Emergency Instruction which implements the EPG's Radioactivity Release Control Guideline. Per the PEI, pressure boundary systems discharging outside containment are isolated when radioactive releases reach the levels requiring declaration of an Alert per the Emergency Plan.

CEI will evaluate the more recently issued EPG Revision 4 generic technical guideline for secondary containment control during revision of PNPP Plant Emergency Instructions (PEI's), which is scheduled for September, 1990. The results of our review will be submitted for NRC information following completion of this review.

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