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POLICY ISSUE

(Information)

June 4, 1992

SECY-92-208

For: The Commissioners
From: James M. Taylor
Executive Director for Operations
Subject: POSSIBLE RECRITICALITY FOLLOWING LARGE BREAK LOCA
Purpose: To inform the Commission of the staff's assessment and plan to further investigate possible recriticality following a large break loss-of-coolant accident (LOCA).
Background: A recent Staff Requirements Memorandum (M920424A) raised a question to the staff and the Advisory Committee on Reactor Safeguards (ACRS) regarding possible recriticality following a large break LOCA. The question arises because the industry performs licensing basis LOCA analyses with the objective of conservatively estimating the fuel and cladding temperature. Thus, the analysis assumptions are deliberately chosen to minimize the water inventory in the reactor vessel during blowdown, and to maximize the time to reflood the core. These assumptions however also result in reflooding the core with water that is highly borated causing the core to be highly subcritical even without any control rods inserted. In a more realistic model, a portion of the original reactor coolant system (RCS) water would remain, and the core would be reflooded sooner with water having a lower concentration of boron. Thus, while the more realistic case may result in lower calculated

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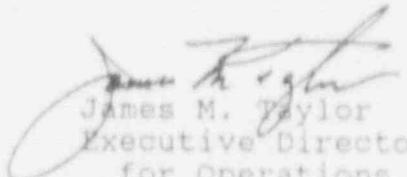
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explicitly preclude a return to critical, the fission heat from such a return would have to be accounted for in the analysis.

Staff Action:

We have contacted each of the PWR Owners' Groups and requested that they address this question for their respective plants. We anticipate receiving a plan from each Owners' Group by the end of June 1992. We will review these plans and determine by July 31, 1992, the need to enter the issue into the Generic Issues Program or the need for other regulatory action.



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