



POLICY ISSUE **(Information)**

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SECY-93-240

FOR: The Commissioners

FROM: James M. Taylor
Executive Director for Operations

SUBJECT: STATUS REPORT ON THE MARK I CONTAINMENT
PERFORMANCE IMPROVEMENT PROGRAM

PURPOSE:

To inform the Commission of the status of implementation of the Mark I Containment Performance Improvement (CPI) Program. Since the CPI program is reaching conclusion, the next report will be the staff's final report to the Commission.

BACKGROUND:

In the staff requirements memorandum of July 11, 1989, the Commission directed the staff to implement the program proposed in SECY-89-017, "Mark I Containment Performance Improvement Program." In a report to the Commission (SECY-92-285) on August 18, 1992, the staff summarized its actions to date implementing the Commission's directives. The staff discussed the implementation status of hardened vent modifications, the station blackout (SBO) rule, and the other CPI actions being considered by the licensees for implementation as part of the individual plant examination (IPE) of severe accident vulnerabilities. This report summarizes NRC and industry actions on the Mark I CPI Program during the past year.

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DISCUSSION:

During the past year, 15 additional plants implemented modifications to harden the torus vents. The following plants have yet to implement the modifications: Browns Ferry Nuclear Plant, Units 1 and 3; Brunswick Steam Electric Plant, Unit 1; Millstone Nuclear Power Station, Unit 1; and Peach Bottom Atomic Power Station, Unit 3. The staff expects that all plants, except Browns Ferry 1 and 3, will have implemented the modifications by March 1994. Browns Ferry 1 and 3 are in extended outages; the licensee plans to complete the modifications for these units before startup some time between 1995 and 1997.

During the fall of 1992, the staff visited the Hope Creek Generating Station, the Peach Bottom Atomic Power Station, Unit 2, and the Browns Ferry Nuclear Plant, Unit 2, to perform walkdowns of the hardened vent modifications. Each licensee briefed the staff on its design of the modification and the proposed procedures for operating the vents. The staff identified some concerns at Browns Ferry 2 and Peach Bottom 2, as discussed below.

Operation of the venting system at Browns Ferry 2 requires the operators to manually open the drain valves in the vent system header common to Units 1, 2 and 3. Tennessee Valley Authority (TVA) had assumed that the vent system would be operated for TW sequences (involving transients followed by the loss of decay heat removal capability) only. Thus, TVA had assumed minimal radionuclide activity in the vent effluent. Therefore, manual action to open the drain valves during vent operation would have no significant adverse impact on the health and safety of the operators. However, TVA failed to consider that an operable vent system is likely to also be used in other severe accident sequences involving primary containment overpressure challenges. The emergency operating procedures for Browns Ferry 2 require operators to vent the primary containment, regardless of the radiation level, if the primary containment pressure limit is reached. Therefore, in some of the severe accident sequences, radionuclide activity may be significant enough to put the operators at risk of excessive radiation exposure. TVA, at a meeting on December 16, 1992 agreed to consider design change options to eliminate the need for manual operator actions for venting during mitigation of containment overpressure challenges.

Philadelphia Electric Company (PECo) informed NRC that it is planning to incorporate the new containment isolation valve (installed as part of the vent modification) into its technical specifications for Peach Bottom, Unit 2 and submitted a request for the technical specification change. PECO stated that the change was needed to enhance the operability of the valves and improve the availability of the vent system. During its site visit, the staff informed PECO that if the technical specification changes are necessary, the change is not a Section 50.59 change and requires a staff evaluation before implementation. PECO was not aware of the problem posed by its request for technical specification changes and agreed to withdraw its request.

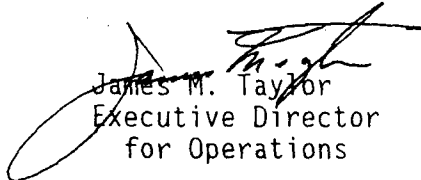
The staff will consider these insights when preparing the temporary instruction (TI) for inspections being developed to verify the completion of the hardened vent modifications at the Mark I plants. The TI is intended to ensure that the kind of problems noted above do not lead to inadvertent adverse impacts as a result of modifications to harden the vent paths at the Mark I plants.

On November 19, 1992, the staff completed the review of licensees' compliance with the SBO rule at Mark I plants. However, the licensee for the Vermont Yankee Nuclear Power Station subsequently informed the staff that Vernon Hydro Station has been modified, resulting in changes to the previously approved alternate ac configurations. As a result of the changes at Vernon Hydro Station, the hydro switchyard and a small portion of the tieline (from the switchyard to the transformer) on the Vernon Hydro Station property will be relocated from underground to above ground and exposed to adverse weather. The staff requested the licensee to provide its justification that the exposed portion of the tieline (from the Vernon Hydro Station to the switchyard and from the switchyard to the transformer) does not present the potential for significant reduction in availability due to weather-related common-mode failures relative to the Vermont Yankee switchgear. If the licensee provides adequate justification, or modifies the design so that the tieline will not be subject to weather-related common-mode failures, the staff would approve Vermont Yankee's action as being in compliance with the SBO rule. The schedules for implementing approved SBO rule actions range from March 1992 to December 1995. The staff finds these schedules acceptable.

In SECY-91-261, the staff indicated that three of the CPI program items for alternate water supply, enhanced reactor pressure vessel depressurization using automatic depressurization system (ADS), and implementation of emergency operating procedures were incorporated in the IPE program. In SECY-92-285, the staff summarized the CPI responses to the three items addressed in the IPE submittals by the licensees for the James A. FitzPatrick Nuclear Power Plant, the Monticello Nuclear Generating Plant, and the Millstone Nuclear Power Station, Unit 1. During the past year the staff received IPE responses for the Pilgrim Nuclear Power Station; the Fermi 2 Facility; the Edwin I. Hatch, Units 1 and 2; the Browns Ferry Nuclear Plant, Unit 2; the Oyster Creek Nuclear Generating Station; and the Brunswick Steam Electric Plant, Units 1 and 2. The staff is reviewing the licensees' responses. However, the actions identified in the IPE responses are summarized below.

The licensee for Pilgrim adopted the use of the diesel-driven fire water system as an alternate water supply. A backup nitrogen supply system is provided to enhance the reliability of ADS to depressurize the vessel. The licensee has adopted the Emergency Operating Procedures Guideline (EPG), Revision 4, for its emergency operating procedures (EOPs) for Pilgrim. The licensee for Fermi 2 has neither implemented an alternate ac independent water supply, nor provided any enhancement to improve the reliability of ADS. It concluded that the risk of the ADS being lost is dominated by human error and the hardware changes will not significantly improve the reliability of ADS. The licensee has implemented EPG, Revision 4, in its EOPs for Fermi 2. The

licensee for Hatch 1 and 2 has incorporated a diesel-driven fire water system as an alternate water supply capability for both units. The licensee did not enhance the reliability of ADS, but has implemented EPG, Revision 4, in its EOPs for Hatch 1 and 2. The licensee for Browns Ferry 2 did not identify any vulnerabilities that would justify modifications to provide alternate water supply or improve the reliability of pressure vessel depressurization. The licensee has implemented the EPG, Revision 4, in its EOPs for Browns Ferry 2. The licensee for Oyster Creek has provided diesel-driven fire water crosstie for both the divisions of core spray system as an ac independent alternate water supply and expects to enhance the reliability of ADS by providing an alternate ac power source. The licensee has incorporated EPG, Revision 4, in its EOPs for Oyster Creek.



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