



## POLICY ISSUE (Information)

June 8, 1984

SECY-84-230

For: The Commissioners

From: William J. Dircks  
Executive Director for Operations

Subject: STRESS CORROSION CRACKING IN INCONEL WELD MATERIAL

Purpose: To inform the Commissioners of recirculation system pipe cracks found in Inconel weld material at Pilgrim Nuclear Power Station, and the status of NRC activities related to this issue.

Discussion: Pilgrim Station is presently shutdown for replacement of primary recirculation piping systems and further inservice inspection activities. Following piping removal, a dye penetrant test (PT) conducted on the exposed interior surface of the reactor vessel outlet nozzle weld disclosed a number of axially oriented crack indications in the Inconel 182 weld butter<sup>1</sup> which joins the 28-inch diameter piping safe end to reactor vessel nozzle in the "B" loop. No evidence of cracking was observed in the "A" loop nozzle weld. Metallurgical evaluation of boat samples and surface replicas of the cracks is being conducted by General Electric for the licensee to determine the nature of the indications. Preliminary metallography results confirm the cracking to be stress corrosion cracking. Axial cracking of a similar nature was also found in three of the 10 Inconel 182 weld butters joining the 12-inch diameter jet pump inlet riser safe ends to the reactor vessel nozzles. Maximum crack size was 3/4-inch long and 0.7 inch deep in the approximately 1-inch thick pipe wall.

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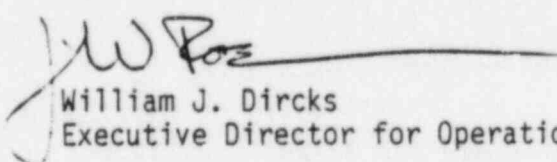
<sup>1</sup> Previous weld deposited material applied to component to avoid post weld heat-treating and allow welding of similar materials.

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The staff issued Information Notice No. 84-41, on June 1, 1984, to all BWR licensees informing them of the Pilgrim findings. The BWR Regulatory Response Group and Boston Edison Company (Pilgrim licensee) met with the staff at Bethesda on June 5, 1984 to address:

1. Pilgrim findings to date, including analytical results from two metallographic boat samples removed from the cracked areas and their generic implications.
2. Industry-wide safety significance for continued plant operation in the light of the Pilgrim findings.
3. Industry plans for inspections to determine if this phenomenon has occurred at other facilities, and the need for any potential corrective actions.

The licensees have been requested to provide additional generic information justifying continued operation within about a week. The staff is continuing to review this matter and will keep the Commission informed.

  
William J. Dircks  
Executive Director for Operations

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