PRIORITY ATTENTION REQUIRED MORNING REPORT - REGION II **Morning Report Date: NOV 07, 2006**

Licensee/Facility:

SOUTH CAROLINA ELECTRIC & GAS CO.
Summer
Jenkinsville,, South Carolina
Dockets: 050-00395
[1] W-3-LP

Notification:

MR Number: 2-2006-0007
Date: 10/26/2006

Subject: BAFFLE JETTING RESULTS IN FUEL ROD DEGRADATION AT VIRGIL C. SUMMER

Discussion:

During a refueling outage, V. C. Summer discovered that degradation of fuel rod P1, located in a corner baffle fuel assembly, was most likely caused by baffle jetting. Fuel rod P1 was located in core location R7 and was the second rod from the corner, downstream in the direction of baffle jetting flow. A detailed high resolution video inspection of fuel rod P1 revealed a separated fuel rod end cap (upper ~6 inches) inside the upper flow nozzle (with end spring still visible); three severed mid grids and three severed intermediate flow mixers at the contact point with P1; and varying degradation in other areas of fuel rod P1. Based upon current indications, no fuel pellets are missing.

Baffle jetting can occur in reactor vessels designed with a counter-flow configuration in the bypass region, which creates a differential pressure across the baffle plate. If a gap between intersecting baffle plates becomes enlarged, the differential pressure across the baffle plate creates a water jet that impinges on adjacent fuel rods. Water jet impingement can cause flow-induced vibration and potential damage to fuel rods. This is a known problem which has been documented in several generic communications such as NRC Circular Notice 80-17, “Fuel Pin Damage due to Water Jet from Baffle Plate Corner,” and NRC Information Notice 82-27, “Fuel Rod Degradation Resulting From Baffle Water-Jet Impingement.”

Examination of two previous cycle fuel assemblies from the same location showed indications of baffle jetting (shiny areas) on the same fuel rod location as P1. Record reviews indicated that sometime prior to 1990, peening and baffle edge bolting improvements were performed by the licensee. As an interim measure, the licensee installed Fuel Assembly Spring Clips on fuel rods that were determined to be susceptible to jet impingement. These clips structurally brace six fuel rods together to dampen vibration at discrete locations along the fuel rods.

Actions taken by the industry to prevent this form of fuel rod degradation have included use of Fuel Assembly Spring Clips, additional baffle bolting, baffle plate peening to close the gap, and implementation of an upflow modification to reduce the differential pressure across the baffle.

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