

## **REQUESTS FOR ADDITIONAL INFORMATION**

Donald C. Cook Nuclear Plant, Unit 1

Relief Request ISIR-31 dated August 21, 2009  
(AEP-NRC-2009-52)

1. On pages two and three of the submittal, the licensee provides a discussion on access difficulties associated with volumetric or visual examination of inner nozzle radii (INR), 14"-1-RC-5-IRS. The configuration specifics need clarification as follows:
  - a. Provide a sketch of the cast pressurizer nozzle and adjacent region showing the interference (heaters, insulation, welds, etc.) to exterior volumetric examinations.
  - b. Provide a sketch of the pressurizer nozzle region showing the restrictions (screen, baffle plates, thermal sleeve, etc.) to interior visual examinations.
  - c. Provide the identification of the different materials (cast carbon steel, cast stainless steel, Inconel butter, stainless steel cladding, etc.) on the sketches.
  - d. Provide a sketch identifying the inner radius area (% of coverage) that is visually examinable from the interior. Discuss the process involved in moving some of these restrictions and the contribution such an effort would have on examination coverage.

2. Photo imaging has made great strides in camera maneuverability, miniaturization, and flaw resolution.

Provide a discussion on the state-of-the-art equipment that was evaluated for interior examinations. (Note: NUREG/CR-6943, "A Study of Remote Visual Methods to Detect Cracking in Reactor Components")

3. On page four of the submittal, the licensee stated that first and second ISI interval examinations were performed on Units 1 and 2.

For each unit, pressurizer and interval, please identify the INR examination method that was used, the examination coverage achieved, and outage date.

4. On page four of the submittal, the licensee provided a discussion on failure mechanisms. The INR are clad to minimize corrosion, and the INR were examined prior to plant startup for cracks. Thermal sleeves were installed to minimize thermal cracking. NUREG-0619, "BWR Feedwater Nozzle and Control Rod Drive Return Line Nozzle Cracking," documents the effects of thermal cycling on cracking the INR region.

Provide a discussion on the effects that thermal cycling has on the INR stresses and on these stresses initiating cracks.