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REPLACEMENT OF PINS & ROLLERS IN IRRADIATED BWR CONTROL BLADES

Keywords: COMPONENT RELIABILITY; PINS AND ROLLERS

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Objectives: This report describes the EPRI sponsored program for the replacement of pins & rollers. The program objectives are:

- utilize past experience/designs
- maximum removal of high cobalt material
- prevent potential damage to hanger
- preclude additional pool contamination
- provide contingency tooling

Comments: Radiation Reductions Quantified by Computer Simulation:

- over 15 plants modeled
- three U.S. plants evaluated
- 20% to 40% field reduction predicted
- predictive accuracy better than 75%

Program Milestones:

- | | |
|---|--------|
| - initial process/equipment design | Oct 91 |
| - demonstration in mockup on spare Clinton blades | Dec 91 |
| - demonstration on LaSalle Irradiated Blade | Jun 92 |
| - final report EPRI TR-101837 | Feb 93 |

Process:

- install blades in work station
- remove pins & rollers
- brush cut surfaces
- install stainless steel buttons
- torque test and inspect
- transfer to fuel pool blade storage location

Remarks/Potential for dose limitation: Mockup Test:

- two spare Clinton blades modified
- controlled and inspected quality 1
- witnessed by EPRI and sponsoring utilities

Irradiated BWR Control Blades Demonstration:

- performed in LaSalle cask area

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- two cycles on blade
- removed on pin and roller
- installed one button guide
- verified process
- site administrative limits prevented further testing

Results/Lessons Learned:

- filtration system was 100% efficient
- provide filters/containers capable of long term storage
- verify blade dimensions prior to modification
- modify alignment stops and guides on button installation tool
- provide better access to blades

References: Ruoss, C., "Replacement of Pins & Rollers in Irradiated BWR Control Blades," *Radiation Field Control Seminar*, Electric Power Research Institute, Seattle, Washington, 1993.

Duration: from: 1991 to: 1993

Funding: N/A

Status: In progress

Last Update: December 22, 1993