Boyle, Patrick

From: Martin, Robert
Sent: Tuesday, September 13, 2011 1:06 PM
To: Kulesa, Gloria; Mendiola, Anthony; Clifford, Paul
Cc: Boyle, Patrick
Subject: FW: NA draft RAIs - Fuel & Reactor Systems

Interesting observations!

From: Boyle, Patrick
Sent: Tuesday, September 13, 2011 12:31 PM
To: Martin, Robert
Subject: RE: NA draft RAIs - Fuel & Reactor Systems

CEA – Control Element assembly, term normally from B&W and CE plants. Westinghouse calls these RCCA – Rod Control Cluster Assembly. It's possible that they have some Westinghouse and some BW, however, control rods are a long term (excess of 10 years) component in a PWR, since they are fully withdrawn from the core during normal operations, so I would be surprised if they had a mix, but it's not impossible. A BWR shapes the flux with control rods and needs to replace several control blades every outage.

DNBR – Departure from Nuclear Boiling Ratio is the ratio of actual localized temperature to the temperature at which nucleate boiling occurs. Related to the Fq (peak power) TS
CHF – Critical Heat Flux is a measure of heat in the assembly that will produce localized boiling – related to the FNDH (enthalpy rise) TS.

The two terms are related, but have different and specific meanings in thermo-hydraulic space.

Let the big guys figure out what terms they want to use, I thought these definitions might help with your questions.

My direct fuel handling experience has been limited to TRIGA fuel, movement and inspection. My PWR fuel handling experience, at a Westinghouse plant, has been limited to riding the refueling bridge in the spent fuel pool during off load and reload, including calling the moves into the control room. I have also done some viewing of video recording for core verification during reload and review of tapes of suspect assemblies, but only for general integrity purposes as I was not VT-2 qualified. I have never observed binocular checks. You can do this with a clear bottomed box partially submerged in the pool to eliminate surface reflections and distortion, but the problem comes from the tremendous heat being produced by spent assemblies and the associated thermal distortions and Cherenkov glow from the gamma emissions.

From: Martin, Robert
Sent: Tuesday, September 13, 2011 11:06 AM
To: McCoy, Gerald; Hiland, Patrick
Cc: Giitter, Joseph; Kulesa, Gloria; Boyle, Patrick; Khanna, Meena
Subject: NA draft RAIs - Fuel & Reactor Systems