



HITACHI

GE Hitachi Nuclear Energy

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MFN 11-237

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Subject: Supplemental Information Associated with MFN 10-245 R4

On September 26, 2011 GE Hitachi Nuclear Energy (GEH) submitted letter number MFN 10-245 R4, titled – “Part 21 Reportable Condition Notification: Failure to Include Seismic Input in Channel-Control Blade Interference Customer Guidance”. In that letter GEH stated that:

“This determination does not apply to BWR/6 or ABWR plants or the ABWR/ESBWR Design Control Document’s (DCD).”

Subsequent to the issuance of the reference letter, the NRC requested additional information as to the basis of this statement with regard to the applicability of this issue to the ABWR/ESBWR Design Control Documents (DCD). The following provides supporting information to address the basis for this statement:

Both the ABWR and ESBWR reactivity control systems incorporate a Fine Motion Control Rod Drive (FMCRD) that is different than the Control Rod Drives supplied to the BWR/2-6. The scram pressure source is independent of RPV pressure thus the issues presented in the September 26, 2011 communication are not applicable to the ABWR or ESBWR design. The FMCRD provides hydraulic-powered rapid insertion (scram) of control rods during normal and abnormal operating conditions. The hydraulic power required for scram is provided by high pressure water stored in the individual Hydraulic Control Units (HCUs). Each HCU contains a scram accumulator charged to high pressure and the necessary valves and components to scram two FMCRDs. Upon scram valve actuation, high pressure nitrogen from the HCU raises a piston (the piston separates the water on top from the nitrogen below) within the accumulator forcing water through the scram piping. This water is directed to each FMCRD connected to the HCU. Inside each FMCRD, high pressure water lifts the

hollow piston off the ball-nut and drives the control rod into the core. The water displaced from the FMCRD is discharged into the reactor vessel.

Both ABWR and ESBWR DCD certifications address scram capability by a commitment to analyses and dynamic testing to verify operability of the FMCRD during dynamic events including seismic and channel-blade interference. The control rod design is evaluated to be sure that it can be inserted during normal operations including the effects of AOOs, infrequent incidents and accidents. Details of details of the FMCRD design are described in more detail in Sections 1.2.2, 3.9, 4.2, 4C and 4.6.1 of the respective ABWR and ESBWR DCDs and 4B for the ESBWR only.

If you have any questions, on this information, please call me at (910) 819-4491.

Sincerely,



Dale E. Porter
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References:

1. Letter from Dale E. Porter (GEH) to Document Control Desk (US NRC), Subject: Part 21 Reportable Condition Notification: Failure to Include Seismic Input in Channel-Control Blade Interference Customer Guidance, September 26, 2011, MFN 10-245 R4.

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