

Supplemental RAI Request for RAI 6.3-10, 6.3-12, 6.3-13, and 6.3-16

6.3-10 Resubmit a response to RAI 6.3-10 based on the most current version of the DCD.

GE's response to RAI 6.3-10, (MFN 06-241) was based on Rev. 1 of the DCD. Staff now understands this response is not correct based on Rev. 2 and the forthcoming Rev. 3 of the DCD.

6.3-12 GE's response to RAI 6.3-12 (MFN 06-241) stated that "Electrical separation and mechanical train separation is complete." Since mechanical trains B and C draw water from a common pool designated as B/C, staff does not agree with the use of the term "complete". When the pool is shared, there is not complete redundancy. Staff suggests to revise the DCD, Tier 2, Section 6.3.2.7.2, with a statement such as "Electrical separation and mechanical separation between the divisions is provided."

6.3-13 This RAI asks GE to include the reactor pressure vessel (RPV) injection line nozzle and equalizing line nozzle throat lengths in ITAAC to ensure that the L/D remains within the applicability range of the TRACG code flow choking model for loss of coolant accident (LOCA) calculations. NEDE-32176P Rev. 3, "TRACG Model Description, April 2006, contains a description of the TRACG04 choked flow model in Section 6.3. Section 6.3.3 gives a description of the calculation of the sonic velocity. In this section (page 6-51), GE states the simplifying assumptions used to calculate the sonic velocity. Under this list, GE states (1 and 2) that they assume equilibrium conditions. GE states that "Under certain circumstances, the equilibrium assumption may break down. In particular, for break assemblies of very short length, non-equilibrium transport behavior may be important."

The following are supplemental questions for GE to address the applicability of the TRACG04 flow choking model to the ESBWR RPV injection line and equalizing line nozzles:

- (A) Does TRACG04 have a sub-cooled choking model to account for small L/D throat conditions?
- (B) Provide the nozzle throat L/D applicability range for the TRACG04 choking model. Provide the nozzle throat L/D for the pressure suppression test facility critical flow tests and the Edwards Blowdown Tests used to qualify TRACG critical flow model.
- (C) State how you will ensure that the L/D for the ESBWR nozzle throats will remain within the TRACG qualification range.
- (D) Add the minimum throat diameter of the RPV injection line nozzles to Tier 1 and provide an ITAAC.

6.3-16 Resubmit a response to RAI 6.3-16 based on the most current version of the DCD.

GE's response to RAI 6.3-16 (MFN 06-241) states that "The level needed to initiate only on reactor water level must be lower than the level needed with high drywell pressure or delay timer. See Table 6.3-1 for values associated with the different levels and initiating signals." Staff understands this statement is no longer true since the design no longer have emergency core cooling system initiation based on high drywell pressure or delay timer.