

Followup RAI question regarding ESBWR DCD Chapter 9

The staff has determined that supplementary information is required to complete its review of ESBWR design control document (DCD) Tier 2, Section 9.5. Please provide a supplementary RAI response for the following question:

Reference: GE response to RAI letter 96 MFN -07-260 Supplement 1 dated May 11, 2007

RAI 9.5-45

The GE response does not adequately address RAI 9.5-45. Regulatory Position 1.2, "Fire Hazards Analysis," of RG 1.189, "Fire Protection for Nuclear Power Plants," provides a detailed description of the information that should be provided in a final fire hazards analysis for areas containing SSCs important to safety. The ESBWR DCD has not identified any exceptions to this Regulatory Position, however, the fire hazards analysis provided in Appendix 9A of the ESBWR DCD does not include all of the appropriate information described in the regulatory guide.

In addition, GE has included NFPA 804, 2006 Edition, "Standard for Fire Protection for Advanced Light Water Reactor Electric Generating Plants," in Table 1.9-22, "Industrial Codes and Standards Applicable to ESBWR," and has not identified any exceptions to this standard in the DCD. Section 4.4, "Fire Hazards Analysis," of NFPA 804 includes a list of information items that the plant fire hazards analysis "shall document." The ESBWR fire hazards analysis provided in Appendix 9A of the DCD does not include all of the appropriate information required by the standard.

The staff assumed that the detailed design for the ESBWR had not progressed to the point where this information could be provided and/or the information would be developed with the programmatic aspects of the fire protection program. That is the basis for RAI 9.5-45. However, GE's response to this RAI indicates that GE does not intend to provide any additional information for the fire hazards analysis for all areas of the plant that contain safety-related SSCs, beyond what is currently in the DCD. It is the staff's position that the information described in RG 1.189, Regulatory Position 1.2 and the information required by Section 4.4 of NFPA 804 is important to the NRC's assessment of the acceptability of the design of the fire protection program for the ESBWR. Consequently, this information should either be provided in the DCD or a COL Action Item should be included to provide the information in the COL application.

RAI 9.5-46

The level of information described above for a fire hazards analysis that is in accordance with RG 1.189 and NFPA 804 should be provided for the Special Cases to allow the staff to adequately evaluate the acceptability of the ESBWR fire protection program. Section 9A.6 of the ESBWR DCD contains a number of non-specific design descriptions that do not provide sufficient specific information to assess the acceptability of the design. For example, Section 9A.6.2, "Fire Door Deviation," provides no specific details of door design and states that "These doors generally have a backup fire door." The final fire hazards analysis should provide the design details of the special doors, identify which have a backup fire door, provide details of combustible materials on both sides of the doors (type, quantity and location), etc.

Section 9A.6.4.7, "Local Instrumentation and Control Equipment," states that "Multidivisional

panel and racks are located in divisional compartments with physical separation between divisions.” The final fire hazards analysis should identify each case and provide details of the configuration including the physical separation. This section also states that “Some areas contain more than one division of instrumentation needed to isolate redundant sets of isolation valves, HVAC, or for some other purpose requiring redundancy.” The final fire hazards analysis should identify each area and provide configuration details, potential failures due to fire, etc.

In addition, the staff’s final acceptance of the deviations taken by GE for the ESBWR of no fixed fire suppression in the rooms surrounding the main control room and beneath the raised floor in the main control room, as well as the exception of no detection in individual electrical cabinets in the main control room, will be based on the final fire hazards analysis. The acceptance of these deviations will be based on the staff’s evaluation of the quantity and location of combustible materials, access to the interior of electrical cabinets, ventilation airflow patterns in the control room, plant procedures, etc. These are details that should be included in the fire hazards analysis but are not currently in the analysis provided in the DCD.

The detailed fire hazard information for the special cases in Section 9A.6 of the DCD should be provided in a revision to the DCD or identified as an action item for the COL applicant to provide.