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MFN 07-294
Supplement 1

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U.S. Nuclear Regulatory Commission
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Subject: Response to RAI 8.3-56 Supplement 1, Related to ESBWR Design Certification Application – DCD Section 8 – Electrical Power

Enclosure 1 contains GE-Hitachi Nuclear Energy Americas LLC (GEH)'s response to the subject NRC RAI 8.3-56, Supplement 1, which was transmitted via the Reference 1 letter.

If you have any questions or require additional information, please contact me.

Sincerely,



James C. Kinsey
Project Manager, ESBWR Licensing

DOGE

Reference:

1. Email from Ilka Berrios (NRC) to Don Lewis (GEH), *RAI 8.3-56 S01*, dated June 20, 2007
2. MFN 07-294, Letter from James C. Kinsey to U.S. Nuclear Regulatory Commission, *Response to Portion of NRC Request for Additional Information Letter No. 97 Related to ESBWR Design Certification Application – Electrical Power - RAI Numbers 8.3-56, 8.3-57, and 8.3-58*, dated May 30, 2007
3. MFN 07-292, *Request for Additional Information Letter No. 97 Related to ESBWR Design Certification Applications “RAIs concerning Chapter 3: 3.8-110, 3.9-176; Chapter 4: 4.3-7 through 4.3-9; Chapter 5: 5.4-59; Chapter 6: 6.2-155; Chapter 8: 8.3-56 through 8.3-58; Chapter 9: 9.1-29, 9.1-30; Chapter 14: 14.2-81 through 14.2-88; Chapter 15: 15.4-30, 15.4-31; Chapter 16: 16.2- 120 through 16.2-155; Chapter 17: 17.4-17; and Chapter 19: 19.1-149 Tier 2 of the ESBWR Design Control Document”*, dated May 10, 2007

Enclosure:

1. MFN 07-294, Supplement 1, RAI Response to RAI 8.3-52 Supplement 1

cc: AE Cabbage USNRC (with enclosures)
RE Brown GEH/Wilmington (with enclosures)
GB Stramback GEH/San Jose (with enclosures)
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MFN 07-294, Supplement 1

Enclosure 1

RAI Response to RAI 8.3-56 Supplement 1

For historical purposes, the original text of RAI 8.3-56 and the GE responses are included. The attachments are not included from the original response to avoid confusion.

NRC RAI 8.3-56

Four divisions of safety-related UPS provide 120V AC power for the reactor protection systems (RPS). Fig. 8.1-4 in Revision 3 of DCD indicated that two RPS power feeders from division 1, two RPS power feeders from division 2, and none from divisions 3 and 4. During a public meeting on April 25 and 26, 2007, GE clarified that RPS instrumentation is powered by four divisions of power from Q-DCIS, but reactor trip solenoids are only powered by division 1 and division 2, due to the fail safe configuration (lost power to scram reactor). Fig. 8.1-4 should be revised to show those power feeders to "Scram solenoids" rather than "RPS".

GE Response

GE has attached the Chapter 7 Revision 3 Fig. 7.2-1 RPS Functional Block to more clearly depict the two power feeders from division 1 and two power feeders from division 2 are only called "RPS". The two feeders from each division feed the load driver series/parallel switches for divisions 1 and 2 RPS sections of the DCIS. There are two sets of load drivers in each division 1 and 2 for not only the scram solenoids but also the MSIV solenoids. GE prefers to retain the feeder load as "RPS" and not designate one feeder as "RPS Scram Solenoids" and the other as "MSIV Solenoids" since both of the feeders go to the respective load drivers of divisions 1 and 2 RPS Q-DCIS.

DCD Impact

No additional DCD changes will be made in response to this RAI.

NRC RAI 8.3-56 S01

Received via email from Ilka Berrios on 6/20/07:

Fig. 8.1-4 in Revision 3 of DCD indicates that two RPSs are separately supplied AC power from Buses 11 and 12 for Division 1, and two RPSs are separately supplied AC power from Buses 21 and 22 for Division 2. According to DCD system description of Section 8.3.1.1.3, four divisions of safety-related UPS provide 120V AC for the RPS. There is a discrepancy between Fig.8.1-4 and the system description. GEH response in MFN 07-294 did not resolve the discrepancy. Also, Fig. 7.2-1 RPS Functional Block attached in GEH response is not clear enough to understand the system.

GEH Response

GEH agreed, during telephone-conference of 28 June 2007, to revise DCD Subsection 8.3.1.1.3, 5TH paragraph, to clarify that four divisions of safety-related UPS provide Q-DCIS loads/logic and to add a second sentence describing that only two divisions (Divisions 1 and 2) supply power to the RPS scram pilot valve solenoids and MSIV solenoids.

DCD Impact

See attached DCD page 8.3-5 of Section 8.3.1.1.3 for the DCD Revision 4 markup.