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MFN 07-640, Supplement 1

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U.S. Nuclear Regulatory Commission
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Washington, D.C. 20555-0001

Subject: **Response to Portion of NRC Request for Additional Information Letter No. 146 Related to ESBWR Design Certification Application, RAI Number 22.5-19 S01**

The purpose of this letter is to submit the GE Hitachi Nuclear Energy (GEH) response to the U.S. Nuclear Regulatory Commission (NRC) Request for Additional Information (RAI) sent by NRC Letter Number 146, dated February 20, 2008 (Reference 1). The previous RAI and response was transmitted in References 2 and 3. The GEH response to RAI Number 22.5-19 S01 is in Enclosure 1.

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

Sincerely,

James C. Kinsey
Vice President, ESBWR Licensing

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NR0

References:

1. MFN-08-157, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, *Request For Additional Information Letter No. 146 Related To ESBWR Design Certification Application*, dated February 20, 2008
2. MFN 07-556, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, Request for Additional Information Letter No. 111 Related to ESBWR Design Certification Application, dated October 15, 2007
3. MFN 07-640 Response to Portion of NRC Request for Additional Information Letter No. 111 Related to ESBWR Design Certification Application, RAI Number 22.5-19, dated December 4, 2007

Enclosure:

1. Response to Portion of NRC Request for Additional Information Letter No. 146 Related to ESBWR Design Certification Application, Regulatory Treatment of Non-Safety Systems (RTNSS), RAI Number 22.5-19 S01

cc: AE Cabbage USNRC (with enclosure)
GB Stramback GEH/San Jose (with enclosure)
RE Brown GEH/Wilmington (with enclosure)
DH Hinds GEH/Wilmington (with enclosure)
eDRF 0000-0082-0378

Enclosure 1

MFN 07-640, Supplement 1

Response to Portion of NRC Request for

Additional Information Letter No. 146

**Related to ESBWR Design Certification Application,
Regulatory Treatment of Non-Safety Systems (RTNSS)**

RAI Number 22.5-19 S01

For historical purposes, the original text of RAI 22.5-19 and the GEH response is included. This original response did not include any attachments or DCD mark-ups.

NRC RAI 22.5-19

DCD Tier 2 Rev.3, Table 9.2-6, states that the Makeup Water System (MWS) is designed to provide makeup water for the Reactor Component Cooling Water System (RCCWS) and the Chilled Water System (CWS). These systems are identified as RTNSS systems in the response to RAI 14.3.69. Clarify whether the makeup to the RCCWS and CWS provided by the MWS is required to support the RCCWS and CWS cooling functions from 72 hours to 7 days in meeting the RTNSS selection Criterion B. If the MWS is selected for RTNSS then specify the corresponding regulatory treatment, including ITAAC.

GEH Response

The Makeup Water System is not selected for RTNSS. An analogous situation may be found at currently operating light water reactors with safety-related closed-loop component cooling systems. They do not require the makeup supply to be safety-related. If necessary, makeup water may be supplied from 72 hours to 7 days by on-site sources, including fire protection system water.

DCD/NEDO-33201 Impact

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

No NEDO-33201 changes will be made in response to this RAI.

NRC RAI 22.5-19 S01

Question Summary: RTNSS determination for the MWS.

Full Text

Please confirm:

- 1. The MWS is available, but not required, to support the RCCWS and CWS cooling functions from 72 hours to seven (7) days following an accident; and,*
- 2. That the other on-site water source and fire protection system water are adequate during the above period without depending on the MWS.*

GEH Response

RCCWS and CWS are RTNSS due to their support functions in providing core cooling and maintaining containment integrity. SRP 9.2.2 requires either adequate surge tank capacity or that an available seismic makeup source can be made available. MWS is not required to provide makeup to RCCWS or CWS from 72 hours to 7 days to support the RTNSS function of core cooling and containment integrity. Consequently,

- 1) MWS is available, but not required, to support the RCCWS and CWS cooling functions from 72 hours to seven (7) days following an accident;
- 2) RCCWS and CWS are closed loop systems and minimum leakage is expected; therefore surge tanks should have adequate capacity to provide makeup for normal system leakage. However if required, the fire protection system (FP) provides a dedicated seismic makeup source directly to RCCWS (reference DCD Tier 2 Subsection 9.2.2.2 and Figure 9.5-1). The CWS pumps and surge tank are adjacent to the RCCWS pumps and surge tank and this seismic FPS makeup source could provide makeup to CWS.

DCD/NEDO-33201 Impact

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

No NEDO-33201 changes will be made in response to this RAI.