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Subject: **Response to Portion of NRC Request for Additional Information Letter No. 179 Related to ESBWR Design Certification Application - Auxiliary Systems - RAI Number 9.2-22 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 dated April 8, 2008, Reference 1. GEH response to RAI Number 9.2-22 S01 is addressed in Enclosure 1. The original response was transmitted via Reference 2 in response to Reference 3.

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

Sincerely,

James C. Kinsey
Vice President, ESBWR Licensing

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NRC

References:

1. MFN 08-364, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, GEH, *Request For Additional Information Letter No. 179 Related To ESBWR Design Certification Application*, dated April 8, 2008
2. MFN 08-189, Response to Portion of NRC Request for Additional Information Letter No. 124 Related to ESBWR Design Certification Application - Auxiliary Systems - RAI Number 9.2-22, dated March 10, 2008
3. MFN 08-029, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, *Request for Additional Information Letter No. 124 Related to the ESBWR Design Certification Application*, dated January 14, 2008

Enclosure:

1. Response to Portion of NRC Request for Additional Information Letter No. 179 Related to ESBWR Design Certification Application - Auxiliary Systems - RAI Number 9.2-22 S01

cc: AE Cabbage USNRC (with enclosure)
GB Stramback GEH/San Jose (with enclosure)
RE Brown GEH/Wilmington (with enclosure)
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Enclosure 1

MFN 08-463

**Response to Portion of NRC Request for
Additional Information Letter No. 179
Related to ESBWR Design Certification Application
Auxiliary Systems
RAI Number 9.2-22 S01**

For historical purposes, the original text of RAI 9.2-22 and the GEH response are included.

NRC RAI 9.2-22

Some information for TCCWS were deleted in Revision 4 of DCD, Tier 2, Section 9.2.8 from previous revisions.

Add the compliance of GDC 2 back to Section 9.2.8,

Add the compliance of GDC 44, 45, and 46 back to Section 9.2.8, or explain why the above criteria are not applicable for the TCCWS.

Specify the number of pumps and heat exchangers that are aligned for service during normal plant power operation.

GEH Response

Some information for TCCWS was deleted in DCD Tier 2, Subsection 9.2.8, Revision 4 because TCCWS is no longer classified as RTNSS since TCCWS is not used to transfer heat from SSCs that are safety-related or RTNSS.

Add the compliance of GDC 2 back to Section 9.2.8. All TCCWS piping and components are located in the Turbine Building (TB), which is a nonsafety-related structure (Ref. DCD Tier 2, Table 3.2-1). There are safety-related sensors located inside the Turbine Building structure. However, GEH response to RAI 14.3-99 S01 (MFN 07-003 S01 dated August 13, 2007) concluded that the need for physical protection or barriers from nonsafety-related systems in the TB is not required due to the fail-safe nature of the sensors and the safety-related systems they serve.

TCCWS is not used to transfer heat from structures, systems, and components that are RTNSS or safety-related (See RAI 9.2-7 S02, attached). Therefore, TCCWS still satisfies the requirements of GDC 2 as it pertains to Position C.2 of Reg. Guide 1.29 but is not required.

Add the compliance of GDC 44, 45, and 46 back to Section 9.2.8, or explain why the above criteria are not applicable for the TCCWS:

TCCWS is not required to meet NRC regulations, safety goal guidelines, and containment performance goal objectives. Additionally, TCCWS is not used to transfer heat from structures, systems, and components that are RTNSS or safety-related as required by GDC's 44, 45, and 46. An explanation of this has been further clarified during NRC and GEH conference call, that GDC 44, 45,

and 46 are not applicable to TCCWS because the system removes heat from the SSCs that are not safety-related or RTNSS (See RAI 9.2-7 S02, MFN 08-191 dated March 6, 2008).

Specify the number of pumps and heat exchangers that are aligned for service during normal plant power operation.

DCD Tier 2, Rev. 4 Subsection 9.2.8.2 states that system parameters are shown in Table 9.2-12 and the system configuration is shown in Figure 9.2-4. DCD Tier 2, Rev. 4 Table 9.2-12 specifies the system design detail with regards to equipment operating during normal plant operation. This is defined by providing "Pump Quantity" as "3 x 50%" and "Heat Exchanger Quantity" as "4 x 50%". Therefore, two (2) pumps and two (2) heat exchangers will be in operation during plant power operation.

DCD Impact

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

NRC RAI 9.2-22 S01

In its response to RAI 9.2-22, GEH indicated that GDC 2 was not required for TCCWS, and therefore, GEH did not revise the DCD to add the compliance of GED 2 to Section 9.2.8 as requested in RAI 9.2-22. In a teleconference of March 25, 2008, the NRC staff explained to GEH that GDC 2 is required for non-safety component cooling water system as discussed in the "Acceptance Criteria" of SRP 9.2.2. Please revise the response to RAI 9.2-22 and DCD tier 2 Section 9.2.8 accordingly.

GEH Response

The applicability of Standard Review Plan (SRP) 9.2.2 to the TCCWS with respect to compliance with GDC 2 is addressed in the SRP Acceptance Criteria as conformance with the guidance of RG 1.29, Position C.1 or C.2.

TCCWS is a non-safety related, non-RTNSS system. TCCWS is not relied upon to transfer heat from SSCs that are safety-related or RTNSS. Its failure will not prevent the performance of any safety function or result in any incapacitating injury to occupants of the main control room. Therefore, neither Position C.1 nor C.2 of RG 1.29 are applicable and thus GDC 2 is not applicable to the design of the TCCWS.

DCD Impact

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