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**Subject: Response to Portion of NRC Request for Additional Information
Letter No. 222 Related to ESBWR Design Certification Application
ESBWR RAI Numbers 22.5-26 and 22.5-27**

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) Letter No. 222, dated August 15, 2008 (Reference 1).

The GEH response to RAI Numbers 22.5-26 and 22.5-27 are in Enclosure 1.

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

Sincerely,

Lee F. Dougherty for

Richard E. Kingston
Vice President, ESBWR Licensing

*DOB8
NRC*

Reference:

1. MFN 08-649, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, GEH, *Request For Additional Information Letter No. 222 Related To ESBWR Design Certification Application*, dated August 15, 2008.

Enclosure:

1. Response to Portion of NRC Request for Additional Information Letter No. 222 Related to ESBWR Design Certification Application Probabilistic Risk Assessment RAI Numbers 22.5-26 and 22.5-27

cc: AE Cubbage USNRC (with enclosure)
 RE Brown GEH/Wilmington (with enclosure)
 eDRF Section 0000-0091-1718

Enclosure 1

MFN 08-727

**Response to Portion of NRC Request for
Additional Information Letter No. 222
Related to ESBWR Design Certification Application
Regulatory Treatment of Non-Safety Systems (RTNSS)**

RAI Numbers 22.5-26 and 22.5-27

NRC RAI 22.5-26

Question Summary: Additional information is needed to justify the proposed regulatory treatment of the RCCWS and PSWS

Full Text:

Table 19A-2 in Revision 5 of the DCD indicates the following proposed regulatory treatment for the following non-safety systems:

<i>Fuel and Auxiliary Pool Cooling System (FAPCS/LPI)</i>	<i>- Availability Controls Manual</i>
<i>Standby Diesel Generators (SDG) Reactor Closed Cooling Water System (RCCWS)</i>	<i>- Availability Controls Manual</i>
<i>Plant Service Water System (PSWS)</i>	<i>- Maintenance Rule controls</i>
<i>PIP Buses</i>	<i>- Maintenance Rule controls</i>

The staff notes that the risk significance of the RCCWS, PSWS and PIP buses, as characterized in the focus PRA Level 1 RTNSS sensitivity results in Table 11.3-21A1 of NEDO-33201, Revision 3, is equal to or greater than that for the FAPCS and SDGs. Please justify the less prescriptive level of regulatory treatment assigned to the RCCWS and PSWS given the results in Table 11.3-21A of NEDO-33201, Revision 3.

GEH Response

When considering whether or not a system should be in the Availability Controls Manual, the results presented in Table 11.3-21A of NEDO-33201, Revision 3, are not the deciding factors. For availability, consideration is given to whether equipment is normally operating or in standby.

The Standby Diesel Generators (SDG) and the LPI mode of the Fuel Pool and Auxiliary Cooling System (FAPCS) are normally in standby. Therefore, it is conceivable that they could go long periods without being operated if there were not some availability control and surveillance testing.

Conversely, the Reactor Closed Cooling Water System (RCCWS), the Plant Service Water System (PSWS) and the PIP busses are normally in service. The availability of those systems is readily apparent through normal operation and equipment rotation, so the Maintenance Rule controls should be sufficient and availability controls are not deemed necessary.

DCD Impact

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

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

NRC RAI 22.5-27

Question Summary: Additional information is needed to justify the proposed regulatory treatment of the FAPCS

Full Text:

In Section 9.1.3.2 of Revision 5 of the DCD, the description of the FAPCS/LPCI function includes a secondary flow path. In this flow path, water is drawn from the Fire Protection Storage Tank using an ASD-equipped motor-driven pump located in the fire pump enclosure and injected into the portion of the primary injection flow path just upstream of the motor-operated shutoff valves (the primary flow path is fed by the two FAPCS trains). Statements in Chapter 22 of NEDO-33201, Revision 3, make it clear that this motor driven pump has been recently incorporated into the design for the sole purpose of low pressure injection into the reactor vessel and serves no fire protection function. Based on our review of Section 19A of Revision 5 of the DCD, it does not appear that this pump is being covered under the RTNSS program as part of the FAPCS/LPCI function. Since this pump is not part of the primary FAPCS trains, it does not appear to be covered in the Availability Controls Manual. Please explain why this part of the FAPCS/LPCI function is not covered by RTNSS.

GEH Response

The pump in question provides a defense-in-depth method of injecting fire protection water into the reactor vessel (U43 function INJ in NEDO-33201, Revision 3 Table 22.11-1) through the FAPCS low-pressure injection (LPI) flow path. The FAPCS LPI/SPC functions were added to RTNSS as active, diverse backup functions in order to address thermal/hydraulic uncertainties. The pump in question, then, is actually a backup to the backup LPI function and does not warrant RTNSS status.

DCD Impact

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

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