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Supplement 4

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Subject: **Response to Portion of NRC Request for Additional Information
Letter No. 63 Related to ESBWR Design Certification Application –
Technical Specifications – RAI Numbers 16.2-78 S01, and 16.2-79 S01**

Enclosure 1 contains the subject supplemental RAI responses resulting from a March 27, 2007 e-mail from the NRC. GE's original response was provided in the Reference 1 letter.

If you have any questions or require additional information regarding the information provided here, please contact me.

Sincerely,



James C. Kinsey
Project Manager, ESBWR Licensing

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NEO

References:

1. MFN 06-431, Letter from David Hinds to U.S. Nuclear Regulatory Commission, *Response to Portion of NRC Request for Additional Information Letter No. 63 Related to ESBWR Design Certification Application – Technical Specifications – RAI Numbers 16.0-2 through 16.0-7, 16.2-10, 16.2-12 through 16.2-22, 16.2-25, 16.2-31 through 16.2-40, 16.2-43, 16.2-44, 16.2-46 through 16.2-49, 16.2-51, 16.2-53, 16.2-55 through 16.2-72, and 16.2-78 through 16.2-80*, November 13, 2006
2. MFN 06-431, Supplement 1, Letter from James C. Kinsey to U.S. Nuclear Regulatory Commission, *Response to Portion of NRC Request for Additional Information Letter No. 63 Related to ESBWR Design Certification Application – Technical Specifications – RAI Number 16.2-65 S01 – Supplement 1*, January 23, 2007
3. MFN 06-431, Supplement 2, Letter from James C. Kinsey to U.S. Nuclear Regulatory Commission, *Response to Portion of NRC Request for Additional Information Letter No. 63 Related to ESBWR Design Certification Application – Technical Specifications – RAI Numbers 16.2-22 S01, 16.2-62 S01, and 16.2-63 S01*, May 14, 2007
4. MFN 06-431, Supplement 3, Letter from James C. Kinsey to U.S. Nuclear Regulatory Commission, *Response to Portion of NRC Request for Additional Information Letter No. 63 Related to ESBWR Design Certification Application – Technical Specifications – RAI Numbers 16.2-46 S01, 16.2-74 S01, and 16.2-80 S01*, May 14, 2007

Enclosure:

1. MFN 06-431, Supplement 4 – Response to Portion of NRC Request for Additional Information Letter No. 63 Related to ESBWR Design Certification Application – Technical Specifications – RAI Numbers 16.2-78 S01, and 16.2-79 S01

cc: AE Cabbage USNRC (with enclosures)
DH Hinds GHNEA (with enclosures)
RE Brown GHNEA (w/o enclosures)
eDRF 68-1637

Enclosure 1

MFN 06-431, Supplement 4

Response to Portion of NRC Request for

Additional Information Letter No. 63

Related to ESBWR Design Certification Application

- Technical Specifications -

RAI Numbers 16.2-78 S01, and 16.2-79 S01

NRC RAI 16.2-78

DCD Tier 2, Rev. 1 section 9.1.3 states that pipes equipped with normally closed manual valves are provided for establishing flow paths from off-site emergency water supplies or the Fire Protection System to refill the IC/PCCS pools following a design basis loss of coolant accident. DCD Tier 1 Figure 2.6.2-1 indicates that the emergency makeup connections and the makeup water supply from the Fire Protection System each pass through a single isolation valve and a single check valve into a common header for makeup to the IC/PCCS pools.

Describe the surveillance testing (including inservice testing) that would apply to the valves in the makeup water transfer line from the fire protection water system and the off-site water supply sources. Describe the Action that would apply if one or more of the valves in the makeup lines were to fail a surveillance test. Propose modifications to TS 3.7.5 and the associated Bases that more clearly define the applicable TS Action for inoperable valves in the makeup line.

GE Response

Portions of the Fire Protection System provide makeup water to the Isolation Condenser/Passive Containment Cooling (IC/PCC) and Spent Fuel pools to extend passive cooling to at least 7 days from the initiating event. This makeup function is not required during the first 72 hours following the initiating event. In response to NRC RAI 16.0-1, GE completed a systematic and comprehensive evaluation of Revision 1 of the ESBWR Design Control Document (DCD) to determine the ESBWR process variables, design features, operating restrictions, and structures, systems, or components (SSCs) that meet one or more of the four criteria in 10 CFR 50.36(c)(2)(ii). This evaluation was used to verify that Revision 1 of DCD Chapter 16, Technical Specifications (TS), includes the LCOs required to maintain the validity of the safety analysis and risk analysis described in Revision 1 of the ESBWR DCD. The results of this evaluation were provided to the NRC by GE letter MFN 06-263, dated August 8, 2006.

The Fire Protection System function providing makeup water to the IC/PCC and Spent Fuel pools was specifically evaluated in the Criterion 4 matrix, line item 1, of the response to RAI 16.0-1. This evaluation determined that the makeup flow path from off-site emergency water supplies or the fire protection system did not meet the criteria for inclusion in the TS. This function is not required during the first 72 hours following the initiating event. The portions of the system required for the IC/PCC and Spent Fuel pools makeup function are considered, however, for regulatory treatment of non-safety systems (RTNSS) Criteria B designation.

GE provided the following commitment related to RTNSS SSCs in letter MFN 06-263: "Consistent with the guidance of SECY-94-084, 'Policy and Technical Issues Associated with the Regulatory Treatment of Non-Safety Systems in Passive Plant Designs,' dated March 28, 1994, and SECY-95-132, 'Policy and Technical Issues Associated with the Regulatory Treatment of Non-Safety Systems in Passive Plant Designs (SECY-94-084),' dated May 22, 1995, GE will provide appropriate 'short-term availability controls' in the form of 'simple Technical Specification' for the RTNSS SSCs identified in DCD Appendix 1D in a future revision of the DCD. These controls will be presented in the DCD consistent with forthcoming guidance being developed as DG-1145." GE expects these regulatory controls to include the surveillance testing (including inservice testing) that would apply to the valves in the makeup water transfer line

from the fire protection water system and the off-site water supply sources and the Actions that would apply if one or more of the valves in the makeup lines were to fail a surveillance test.

It should be noted that the Fire Protection System flow path providing makeup water to the IC/PCC and Spent Fuel pools is the subject of other RAIs, such as RAI 9.1-13. In the response to RAI 9.1-13, provided to the NRC by GE letter MFN 06-309, dated September 8, 2006, GE proposed a modification to the design to include two parallel valves in the makeup water supply line from the Fire Protection System to ensure that the capability to provide makeup water from the Fire Protection System to the IC/PCC and Spent fuel Pools is available for the first seven days even if a single active failure were to occur.

DCD Impact

No changes will be made to DCD Tier 2, Chapter 16 as a result of this RAI.

NRC RAI 16.2-78, Supplement 1

The response to NRC RAI 16.2-78 stated that GE expects to provide appropriate 'short-term availability controls' in the form of a 'simple Technical Specification.' This TS will include the surveillance testing (including inservice testing) that would apply to the valves in the makeup water transfer line from the fire protection water system and the off-site water supply sources and the Actions that would apply if one or more of the valves in the makeup lines were to fail a surveillance test. However, the response also states no changes will be made to DCD Tier 2, Chapter 16.

It is not clear where these availability controls and simple technical specification would appear if not in Chapter 16. Provide the availability controls and simple technical specification applicable to the makeup line.

GE Response

The Regulatory Treatment of Non-Safety Systems (RTNSS) short-term availability controls will be included in an Availability Control Manual (ACM) as an Appendix to DCD, Tier 2, Chapter 19. The Availability Control for the makeup water transfer system will be included in the ACM.

DCD Impact

An Availability Control for the makeup water transfer system will be included in an Appendix to DCD, Tier 2, Chapter 19.

NRC RAI 16.2-79

DCD Tier 2, Rev. 1, section 9.1.3 states that pipes equipped with normally closed manual valves are provided for establishing flow paths from the Fire Protection System to refill the IC/PCCS pools following a design basis loss of coolant accident. However, the Bases proposed for TS 3.7.5 state only that the Fuel and Auxiliary Pools Cooling System includes flow paths for postaccident make-up water transfer from off-site water supply sources to the IC/PCCS pools.

Clarify the function of the fire protection water system as a source of makeup by proposing changes to the Bases for TS 3.7.5. Describe how failures affecting the reliability or redundancy of the fire protection water system as a makeup water source would be treated with respect to operability of the IC/PCCS pool. Propose modifications to TS 3.7.5 and the associated Bases that more clearly define the applicable TS Action for degraded Fire Protection System capability.

GE Response

Portions of the Fire Protection System provide makeup water to the Isolation Condenser/Passive Containment Cooling (IC/PCC) and Spent Fuel pools to extend passive cooling to at least 7 days from the initiating event. This makeup function is not required during the first 72 hours following the initiating event. In response to NRC RAI 16.0-1, GE completed a systematic and comprehensive evaluation of Revision 1 of the ESBWR Design Control Document (DCD) to determine the ESBWR process variables, design features, operating restrictions, and structures, systems, or components (SSCs) that meet one or more of the four criteria in 10 CFR 50.36(c)(2)(ii). This evaluation was used to verify that Revision 1 of DCD Chapter 16, Technical Specifications (TS), includes the LCOs required to maintain the validity of the safety analysis and risk analysis described in Revision 1 of the ESBWR DCD. The results of this evaluation were provided to the NRC by GE letter MFN 06-263, dated August 8, 2006.

The Fire Protection System function providing makeup water to the IC/PCC and Spent Fuel pools was specifically evaluated in the Criterion 4 matrix, line item 1, of the response to RAI 16.0-1. The evaluation determined that the makeup flow path from off-site emergency water supplies or the fire protection system did not meet the criteria for inclusion in the TS. This function is not required during the first 72 hours following the initiating event. The portions of the system required for the IC/PCC and Spent Fuel pools makeup function are considered, however, for regulatory treatment of non-safety systems (RTNSS) Criteria B designation.

GE provided the following commitment related to RTNSS SSCs in letter MFN 06-263: "Consistent with the guidance of SECY-94-084, 'Policy and Technical Issues Associated with the Regulatory Treatment of Non-Safety Systems in Passive Plant Designs,' dated March 28, 1994, and SECY-95-132, 'Policy and Technical Issues Associated with the Regulatory Treatment of Non-Safety Systems in Passive Plant Designs (SECY-94-084),' dated May 22, 1995, GE will provide appropriate 'short-term availability controls' in the form of 'simple Technical Specification' for the RTNSS SSCs identified in DCD Appendix 1D in a future revision of the DCD. These controls will be presented in the DCD consistent with forthcoming guidance being developed as DG-1145." GE expects these regulatory controls to address failures affecting the reliability or redundancy of the fire protection water system as a makeup water source with respect to operability of the IC/PCCS pool.

The Bases for TS 3.7.5, "Isolation Condenser (IC)/Passive Containment Cooling (PCC) Pools," Background discussion currently states: "The FAPCS includes flow paths for post-accident make-up water transfer, from off-site water supply sources to the IC/PCCS pools." GE will revise DCD Chapter 16, TS 3.7.5, Bases Background paragraph 9 to state: "The FAPCS includes flow paths for post-accident make-up water transfer, from the fire protection system and off-site water supply sources to the IC/PCCS pools." This revision will be provided in a future update of DCD Tier 2, Chapter 16.

DCD Impact

DCD Tier 2, Chapter 16B for TS B 3.7.5 will be revised as described above in a future revision.

NRC RAI 16.2-79, Supplement 1

The response to NRC RAI 16.2-79 stated that GE expects to provide appropriate 'short-term availability controls' in the form of a 'simple Technical Specification.' This TS will address failures affecting the reliability or redundancy of the fire protection water system as a makeup water source with respect to operability of the Isolation Condenser Passive Containment Cooling System (IC/PCCS) pool. However, the response also states no changes will be made to DCD Tier 2, Chapter 16.

It is not clear where these availability controls and simple technical specification would appear if not in Chapter 16. Provide the availability controls and simple technical specification applicable to the fire protection system.

GE Response

The Regulatory Treatment of Non-Safety Systems (RTNSS) short-term availability controls will be included in an Availability Control Manual (ACM) as an Appendix to DCD, Tier 2, Chapter 19. The Availability Control for the makeup water transfer system will be included in the ACM.

DCD Impact

An Availability Control for the makeup water transfer system will be included in an Appendix to DCD, Tier 2, Chapter 19.