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MFN 07-344

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**Subject: Response to Portion of NRC Request for Additional Information  
Letter No. 100 – Generic Issues – RAI Numbers 20.0-11 and 20.0-13**

Enclosure 1 contains GHNEA's response to the subject NRC RAIs transmitted via 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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Reference:

1. MFN 07-327, Letter from U.S. Nuclear Regulatory Commission to David Hinds, *Request for Additional Information Letter No. 100 Related to the ESBWR Design Certification Application*, May 30, 2007

Enclosures:

1. MFN 07-344 – Response to Portion of NRC Request for Additional Information Letter No. 100– Related to ESBWR Design Certification Application – Generic Issues – RAI Numbers 20.0-11 and 20.0-13.
2. MFN 07-344 – Response to Portion of NRC Request for Additional Information Letter No. 100– Related to ESBWR Design Certification Application – Generic Issues – RAI Numbers 20.0-11 and 20.0-13, DCD Tier 2 Markup Pages

cc: AE Cubbage USNRC (with enclosures)  
DH Hinds GHNEA Wilmington (with enclosures)  
BE Brown GHNEA Wilmington (with enclosures)  
eDRF 0000-0069-0807

**Enclosure 1**

**MFN 07-344**

**Response to Portion of NRC Request for**

**Additional Information Letter No. 100**

**Related to ESBWR Design Certification Application**

**Generic Issues**

**RAI Numbers 20.0-11 and 20.0-13**

**NRC RAI 20.0-11**

*DCD, Tier 2, Revision 3, Table 1C-1 indicates that GL 87-06, "Periodic Verification of Leak Tight Integrity of Pressure Isolation Valves," is not applicable to the ESBWR and references Section B3.4.6 of NUREG-1434 for justification that the ESBWR does not need nor have pressure isolation valves (PIVs). Section B3.4.6 of NUREG-1434, "Standard Technical Specifications – General Electric Plants, BWR/6," describes PIVs in BWR/6 nuclear power plants. Discuss the basis for the statement in Table 1C-1 that GL 87-06 is not applicable to the ESBWR.*

**GE Response**

The basis for this statement is summarized in the last paragraph of DCD Tier 2 Appendix 3K, Section 3K.2, which reads as follows:

“The periodic surveillance and leak rate testing requirements for high-pressure to low-pressure isolation valves are not applicable to the ESBWR, because, as shown in this appendix, the ESBWR design does not contain a pressure isolation valve between the reactor coolant pressure boundary and a low pressure piping system.”

A reference to Appendix 3K will be added to the "Evaluation Result or Topic's Tier 2 Location(s)" column of Table 1C-1 for GL 87-06 in place of the current reference to Section B3.4.6 of NUREG-1434.

**DCD Impact**

DCD Tier 2, Table 1C-1, will be revised as noted in the attached markup for item GL 87-06.

**NRC RAI 20.0-13**

*New Generic Issue 105*

*Concerning New Generic Issue 105, "interfacing Systems LOCA at LWRs," please include a reference in the DCD, Tier 2, Table 1.11-1, Issue 105, to the intersystem loss-of-coolant accident evaluation in the DCD, Appendix 3K, "Resolution of Intersystem Loss-of-Coolant Accident."*

**GE Response**

GE agrees. The Tier 2 DCD will be modified as requested.

**DCD Impact**

The Technical Resolution statement for DCD Tier 2, Table 1.11-1, Issue 105, will be revised as noted in the attached markup.

**Enclosure 2**

**MFN 07-344**

**Response to Portion of NRC Request for**

**Additional Information Letter No. 100**

**Related to ESBWR Design Certification Application**

**Generic Issues**

**RAI Numbers 20.0-11 and 20.0-13**

**DCD Tier 2 Markup Pages**

**Table 1C-1**  
**Operating Experience Review Results Summary – Generic Letters**

No.	Issue Date	Title	Evaluation Result or Topic's Tier 2 Location(s)
87-06	3/13/87	Periodic Verification of Leak Tight Integrity of Pressure Isolation Valves	Not applicable. As described in Appendix 3K, the ESBWR does not need or have pressure isolation valves between the reactor coolant pressure boundary and a low pressure piping system.
87-09	6/4/87	Sections 3.0 and 4.0 of the Standard Technical Specifications (STS) on the Applicability of Limiting Conditions for Operations and Surveillance Requirements	Chapter 16 TS Section 3.0, consistent with current Standard Technical Specifications (NUREG-1434, Rev. 3.1).
88-01	1/25/88	NRC Position on IGSCC in BWR Austenitic Stainless Steel Piping	Subsection 5.2.3.4 and Chapter 16 Bases B3.4.2
88-14	8/8/88	Instrument Air Supply System Problems Affecting Safety-Related Equipment Past Related Correspondence: IE Notice 87-28, Supp. 1 NUREG-1275, Volume 2	Subsection 9.3.6
88-15	9/12/88	Electric Power Systems — Inadequate Control Over Design Process Past Related Correspondence: IE Notice 88-45	Most of the issues described in GL88-15 are not applicable to the ESBWR. Section 8.3
88-16	10/4/88	Removal of Cycle-Specific Parameter Limits from Technical Specifications	Not Applicable. Is an administrative communication. Consistent with current Standard Technical Specifications (NUREG-1434, Rev. 3.1). Subsection 16.5.6.3
88-18	10/20/88	Plant Record Storage on Optical Disks Past Related Correspondence: NUREG-0800 Reg. Guide 1.28, Rev. 3	This generic letter is not involved with operational experience, so no evaluation is required.
88-20	11/23/88	Individual Plant Examination for Severe Accident Vulnerabilities-10 CFR Para. 50.54(f)	Chapter 19

Table 1.11-1 (continued)

Action Plan Item/Issue Number	Description	Associated Tier 2 Location(s) and/or Technical Resolution
Issue 96	RHR Suction Valve Testing	(1, 6) PWR issue that has been integrated into resolution of Issue 105.
Issue 97	PWR Reactor Cavity Uncontrolled Exposures	(1) This is a PWR issue that is not applicable to ESBWR.
Issue 98	CRD Accumulator Check Valve Leakage	(3)
Issue 99	RCS/RHR Suction Line Valve Interlock on PWRs	(1) This is a PWR issue that is not applicable to ESBWR.
Issue 100	Once-Through Steam Generator Level	(1) This is a PWR issue that is not applicable to ESBWR.
Issue 101	BWR Water Level Redundancy	(4)
Issue 102	Human Error in Events Involving Wrong Unit or Wrong Train	(4)
Issue 103	Design for Probable Maximum Precipitation	(8) The maximum flood level for the ESBWR design is 0.3 m (1 foot) below grade, which is consistent with the NRC recommendation. The developed NOAA/NWS procedures from Generic Letter 89-22 will be used for determining PMP for a specific site. Therefore, this issue is resolved for the ESBWR Standard Plant design.
Issue 104	Reduction of Boron Dilution Requirements	(1) This is a PWR issue that is not applicable to the ESBWR design.
Issue 105	Interfacing Systems LOCA at LWRs	(4) Subsection 7.6.1 describes high pressure/low pressure interlocks to prevent overpressurization of low pressure systems which are connected to high pressure systems. Portions of the GDCS piping are considered part of the reactor coolant boundary and portions of the piping connect to the low pressure GDCS pools. A positive means is provided in the system design to prevent reactor pressure from being transmitted to



Table 1.11-1 (continued)

Action Plan Item/Issue Number	Description	Associated Tier 2 Location(s) and/or Technical Resolution
		<p>the low pressure portion of the GDCS. Both mechanical means of isolation and system interlocks ensure that high pressure is not transmitted to the low pressure portions of the system.</p> <p>The only other high pressure/low pressure interface is the LPCI mode of the nonsafety-related Fuel and Auxiliary Pools Cooling System (FAPCS), which is described in Subsection 9.1.3.4.</p> <p>Based on system design and testing procedure evaluations from the point of view of interfacing system LOCA and overpressurization of low pressure systems, the following conclusions are reached:</p> <ul style="list-style-type: none"> <li>• The low pressure portions of the system are adequately protected from high pressure during normal plant operation.</li> <li>• Interlocks on the valves are provided that allow operability testing of valves during normal plant operation or under cold shutdown conditions.</li> <li>• Isolation of the high/low pressure systems is maintained during valve testing.</li> <li>• Isolation of the high/low pressure systems is maintained under the condition of an inadvertent opening of a valve due to an electrical failure.</li> <li>• ALWR requirements imposed on ESBWR for high/low pressure interface design for systems are met.</li> <li>• The system design pressures requirements imposed by ALWR are met.</li> </ul> <p>The overall conclusion is that the concerns</p>

Table 1.11-1 (continued)

Action Plan Item/Issue Number	Description	Associated Tier 2 Location(s) and/or Technical Resolution
		identified in GSI 105, "Interfacing Systems LOCA at LWRs," are resolved for ESBWR. Refer to the intersystem loss-of-coolant accident evaluation in Appendix 3K, "Resolution of Intersystem Loss-of-Coolant Accident," for further details.
Issue 106	Piping and the Use of Highly Combustible Gases in Vital Areas	(4) This issue is considered resolved through compliance with SRP Section 9.5.1, consistent with the NRC resolution. Table 1.9-9 summarizes ESBWR Standard Plant design compliance with SRP Section 9.5.1, and notes some differences to acceptance criteria along with references to Subsections where the differences are discussed. Refer to Subsection 9.5.1 for further details.
Issue 107	Main Transformer Failures	(9 for existing plants only) This issue will be considered during detailed design of the ESBWR electrical systems. See Chapter 8.
Issue 108	BWR Suppression Pool Temperature Limits	(9)
Issue 109	Reactor Vessel Closure Failure	(3)
Issue 110	Equipment Protective Devices on Engineered Safety Features	(3)
Issue 111	Stress Corrosion Cracking of Pressure Boundary Ferritic Steels in Selected Environments	(5)
Issue 112	Westinghouse RPS Surveillance Frequencies and Out-of-Service Times	(1) This is a Westinghouse PWR issue that is not applicable to ESBWR.
Issue 113	Dynamic Qualification Testing of Large Bore Hydraulic Snubbers	(4) Regulatory Guide may eventually be developed addressing this issue for new plants.