

GE-Hitachi Nuclear Energy Americas LLC

James C. Kinsey
Project Manager, ESBWR Licensing

PO Box 780 M/C J-70
Wilmington, NC 28402-0780
USA

T 910 675 5057
F 910 362 5057
jim.kinsey@ge.com

MFN 07-343

Docket No. 52-010

June 20, 2007

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

**Subject: Response to Portion of NRC Request for Additional Information Letter
No. 91 Related to ESBWR Design Certification Application,
RAI Number 19.1-143.**

Enclosure 1 contains GHNEA's response to the subject NRC RAI transmitted via the Reference 1 letter.

If you have any questions about the information provided here, please contact me.

Sincerely,



James C. Kinsey
Project Manager, ESBWR Licensing

DOB

NRO

Reference:

1. MFN 07-104, Letter from U.S. Nuclear Regulatory Commission to David Hinds, *Request for Additional Information Letter No. 91 Related to ESBWR Design Certification Application, January 31, 2007.*

Enclosures:

1. Response to Portion of NRC Request for Additional Information Letter No. 91 Related to ESBWR Design Certification Application ESBWR Probabilistic Risk Assessment RAI 19.1-143.

cc: AE Cabbage USNRC (with enclosures)
George Stramback GHNEA/San Jose (with enclosures)
RE Brown GHNEA/Wilmington (with enclosures)

EDRF Section 0068-4316

Enclosure 1

MFN 07-343

**Response to Portion of NRC Request for
Additional Information Letter No. 91
Related to ESBWR Design Certification Application
ESBWR Probabilistic Risk Assessment
RAI Numbers 19.1-143**

NRC RAI 19.1-143

Provide additional information regarding RCS venting for GDCS operation 1 during Modes 5 and 6. RCS pressure control is not required by Technical Specifications (TS) in Modes 5 and 6 (when the reactor vessel head is on). However, the ability to vent the RCS is necessary to use low pressure injection (via fire water or FAPCS) and to use GDCS. The staff notes that the TS bases for the operability of GDCS during Modes 5 and 6 state, "The RPV must have or have the ability to establish sufficient RPV venting capacity to maintain the RPV depressurized following loss of decay heat removal capability for a GDCS injection branch line to be capable of injecting into the RPV." However, no vent size is specified in the TS bases and, with insufficient vent size, GDCS could be inoperable. Please provide the following: (1) specify in the TS bases for GDCS operability at shutdown the vent size necessary for GDCS to function and (2) calculations that support the specified RCS vent size.

GHNEA Response

NRC RAI 16.2-74, Supplement 1, similarly requested additional information regarding adequate vent size to assure Gravity-Driven Cooling System (GDCS) operability in Modes 5 and 6. The response (MFN 06-431, Supplement 3, dated May 14, 2007) commits to revise Technical Specifications and Bases to require adequate vent capability for GDCS operability. The Technical Specification requirement also assures that utilization of any vent path other than ADS is analyzed prior to crediting GDCS operability in Modes 5 and 6. The response supplied by MFN 06-431, Supplement 3, is repeated below.

General Electric will revise Design Control Document (DCD), Tier 2, Revision 3, Chapters 16 and 16B, LCO 3.5.3, "Gravity-Driven Cooling System (GDCS) - Shutdown," to include a Surveillance Requirement (SR) for reactor pressure vessel (RPV) venting capability. This SR will require verification that the RPV has venting capacity capable of maintaining the RPV sufficiently depressurized to allow GDCS injection following loss of decay heat removal capability.

DCD Impact

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

DCD Tier 2, Chapters 16 and 16B, Revision 4, will include the following SR and supporting Bases:

Specification 3.5.3 INSERT

SURVEILLANCE		FREQUENCY
SR 3.5.3.1	Verify availability of RPV venting capacity sufficient to allow GDCS injection following loss of decay heat removal capability.	24 hours

Specification 3.5.3 Bases INSERT

SR 3.5.3.1

This SR requires verification every 24 hours that the RPV has venting capacity capable of maintaining the RPV sufficiently depressurized to allow GDCS injection following loss of decay heat removal capability. This SR may be met by the OPERABILITY of the ADS function. The ADS capacity needed to meet this SR is established based on the existing decay heat and includes an allowance for a single failure.

RPV vent paths other than the ADS may also be used to meet this SR provided those vent path(s) are sufficient for the existing decay heat load and are maintained open.

The 24 hour Frequency for performing this SR is based on engineering judgment. This Frequency is acceptable because this SR ensures that the required RPV venting capacity is available when required to support the decay heat removal function of the GDCS.