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MFN 07-455, Supplement 2

Docket No. 52-010

December 11, 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. 113 Related to ESBWR Design
Certification Application, RAI Number 19.1-151 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 October 16, 2007 (Reference 1). Previous RAIs and responses were transmitted in References 2 and 3. The GEH response to RAI Number 19.1-151 S01 is in Enclosure 1.

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

Sincerely,

James C. Kinsey
Vice President, ESBWR Licensing

DOB
NRO

Reference:

1. MFN 07-557, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, *Request for Additional Information Letter No. 113 Related to ESBWR Design Certification Application*, October 16, 2007.
2. MFN 07-455. *Response to Portion of NRC Request for Additional Information Letter No. 101 Related to ESBWR Design Certification Application, RAI Numbers 19.1-150, 19.1-151, 22.5-12 through 22.5-14, 22.5-17 and 22.5-18*. August 23, 2007.
3. MFN 07-357, Letter from U.S. Nuclear Regulatory Commission to David. Hinds, *Request for Additional Information Letter No. 101 Related to ESBWR Design Certification Application*. June 21, 2007.

Enclosure:

Response to Portion of NRC Request for Additional Information Letter No. 113 Related to ESBWR Design Certification Application ESBWR Probabilistic Risk Assessment RAI Number 19.1-151 S01

cc:	AE Cabbage	USNRC (with enclosure)
	GB Stramback	GEH/San Jose (with enclosure)
	RE Brown	GEH/Wilmington (with enclosure)
	eDRFSection	0000-0077-2509

Enclosure 1
MFN 07-455, Supplement 2

**Response to Portion of NRC Request for
Additional Information Letter No. 113
Related to ESBWR Design Certification Application
ESBWR Probabilistic Risk Assessment
RAI Numbers 19.1-151 S01**

NRC RAI 19.1-151 (original)

Section 19A.4.2.1 states A fire in the control room does not affect the automatic actuations of the safety systems. However, this section also states that the remote shutdown panel allows the detection of failed automatic actuations and the performance of compensatory manual actuations. Please describe the reliance on and the nature of the compensatory manual actuations. Does the fire PRA credit any compensatory manual actions for safe shutdown and, if so, are the actions performed at the remote shutdown panel or at other locations in the plant? Regulatory Guide 1.189, Rev. 1, provides guidance for operator manual actions that are credited for post-fire safe shutdown.

GEH Response

As noted in the responses to RAI 19.1-150, the operator actions are minimized to improve the safety of ESBWR plants. The remote shutdown panel allows the operators to perform exactly the same functions as in the main control room. However, these actions are for defense-in-depth. The performance of the compensatory manual actions for safe shutdown is not credited in the ESBWR fire PRA model for a postulated fire in the main control room.

DCD/NEDO-33201 Impact

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

No changes to NEDO033201 will be made in response to this RAI.

containment isolation valves needed for post-accident recovery modes, which do not receive an isolation signal.

The FAPCS is a nonsafety-related system with the exception of piping and components required for:

- Containment isolation;
- Refilling of the IC/PCC pools and the Spent Fuel Pool with post-accident water supplies from the Fire Protection System or another onsite or offsite source.
- The high-pressure interface with the Reactor Water Cleanup/Shutdown Cooling system used for low pressure coolant injection.

The piping and components needed for the following functions are classified as RTNSS:

- Suppression pool cooling
- Low pressure coolant injection

This includes the suction line from the suppression pool, all of the piping and components in the cooling and cleaning trains, and the discharge lines to the suppression pool and the LPCI interface up to the safety-related isolation valves.

The FAPCS piping and components that are required to support safety-related and/or accident recovery function have Quality Group B or C and Seismic I classification (Table 9.1-3). A Seismic I classification is required for all safety-related functions listed above. A Seismic II classification is sufficient for the remaining nonsafety-related piping and components that support accident recovery functions. This classification satisfies the requirements of SRP 9.1.3 Section I.1.

Detailed System Description

The FAPCS is provided with two cooling and cleanup (C/C) trains with 100% capacity during normal operation. Each FAPCS train is physically separated and has one pump, one heat exchanger and one water treatment unit consisting of a prefilter and a demineralizer.

A manifold of four motor operated valves is attached to each end of the FAPCS C/C trains [refer to Figure 9.1-1]. These manifolds are used to connect the FAPCS C/C train with one of the two pairs of suction and discharge piping loops to establish the desired flow path during FAPCS operation. One loop is used for the fuel pools and auxiliary pools, and the other loop for the GDCS pools and suppression pool and for injecting water to drywell spray sparger and reactor vessel via the RWCU/SDC System and feedwater pipes.

The use of manifolds with proper valve alignment and separate suction-discharge piping loops 1) allows operating of one train independent of the other train to permit on-line maintenance or dual mode operation using separate trains if necessary, 2) prevents inadvertent draining of the pool and minimizes mixing of contaminated water in the Spent Fuel Pool with cleaner water in other pools.

Each water treatment unit is equipped with a prefilter, a demineralizer and a post strainer. A bypass line is provided to permit bypass of the water treatment unit, when necessary. To protect demineralizer resin, the water treatment units are bypassed automatically on a high temperature

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