



HITACHI

GE Hitachi Nuclear Energy

James C. Kinsey
Vice President, ESBWR Licensing

PO Box 780 M/C A-55
Wilmington, NC 28402-0780
USA

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

MFN 08-225

Docket No. 52-010

March 8, 2008

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. 124 Related to ESBWR Design
Certification Application - Auxiliary Systems - RAI Number
9.1-46**

Enclosure 1 contains GEH's response to the subject RAIs transmitted via
Reference 1.

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

Sincerely,

James C. Kinsey
Vice President, ESBWR Licensing

DOB8
NRO

Reference:

1. MFN 08-029, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, *Request for Additional Information Letter No. 124 Related to the ESBWR Design Certification Application*, January 14, 2008

Enclosure:

1. Response to Portion of NRC Request for Additional Information Letter No. 124 Related to ESBWR Design Certification Application - Auxiliary Systems - RAI Number 9.1-46.

cc: AE Cubbage USNRC (with enclosure)
RE Brown GEH/Wilmington (with enclosure)
DH Hinds GEH/Wilmington (with enclosure)
GB Stramback GEH/San Jose (with enclosure)
eDRF 0000-0080-9022, Revision 1

Enclosure 1

MFN 08-225

Response to Portion of NRC Request for

Additional Information Letter No. 124

Related to ESBWR Design Certification Application

Auxiliary Systems

RAI Number 9.1-46

NRC RAI 9.1-46

With regards to the spent fuel pool (SFP), provide the following information:

- (1) What is the depth of water above the top of active fuel in the pool if the pool is drained to the bottom of the transfer gates?*
- (2) What is the volume of water in the SFP when the level is at the bottom of the gates?*
- (3) What is the time to fuel uncover if the pool contains the design-basis spent fuel heat load plus one full core offload, there is no forced cooling available, and the pool level is at the bottom of the transfer gates?*

GEH Response

During a 2/27/2008 telecon, GEH requested clarification regarding the specific concern to be addressed by this RAI. It was understood by GEH that the concern is related to the worst-case loss of spent fuel pool (SFP) water through a leak in the transfer gates to the adjacent pools.

There are two small pools connected to the SFP: the lower fuel transfer pool and the cask pool. These pools are usually filled, and it's expected that there would be very little, if any, leakage through the gates if they were to be drained for maintenance. It would be an extraordinarily unlikely scenario to have a full SFP including a full core offload, in conjunction with a loss of cooling, in conjunction with a failure of the transfer gates, at a time when these pools are empty.

GEH has evaluated this scenario where the level in the SFP was reduced by water spilling into the two adjacent empty pools. By examining the geometries of these pools, GEH was able to estimate the amount of water that is redistributed. In a simple calculation, the volume of water available in each of the pools was added together to determine the total amount of coolant available for boil-off. Although the margin is reduced, there is still sufficient water to accommodate 72 hours of heat-up and boiling without uncovering the fuel assuming the design basis heat loads.

DCD Impact

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