



GE Energy

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**Subject: Response to Portion of NRC Request for Additional Information
Letter No. 31 Related to ESBWR Design Certification Application –
Isolation Condenser Test Program - RAI Number 14.2-3**

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

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

Sincerely,

Kathy Sedney for

David H. Hinds
Manager, ESBWR

Enclosure:

1. MFN 06-286 - Response to Portion of NRC Request for Additional Information Letter No. 31 Related to ESBWR Design Certification Application – Isolation Condenser Test Program - RAI Number 14.2-3

Reference:

1. MFN 06-203, Letter from U. S. Nuclear Regulatory Commission to Mr. David H. Hinds, *Request for Additional Information Letter No. 31 Related to ESBWR Design Certification Application*, June 23, 2006

cc: WD Beckner USNRC (w/o enclosures)
AE Cabbage USNRC (with enclosures)
LA Dudes USNRC (w/o enclosures)
GB Stramback GE/San Jose (with enclosures)
eDRF 0000-0049-7561

Enclosure 1

MFN 06-286

Response to Portion of NRC Request for

Additional Information Letter No. 31

Related to ESBWR Design Certification Application

Isolation Condenser Test Program

RAI Number 14.2-3

NRC RAI 14.2-3

In GE letter to NRC dated September 20, 2005, "Summary of September 9, 2005 NRC/GE Conference Call on TRACG LOCA SER Confirmatory Items," GE action to address the SER Confirmatory Item # 6 was discussed. The specific concern was leakage in the isolation condenser (IC) during testing at the PANTHER-IC facility, which is considered an IC structural integrity issue that needs to be resolved for the ESBWR design certification. GE stated in the letter that the O-ring design has been changed to a Helicoflex self energizing O-ring design that is more resilient to distortion. GE further stated that closing of the condensate return valve will be controlled to limit the gradients associated with shutdown and cooldown of the IC heat exchanger. However, in Table 14.2-1 of the DCD, "Power Ascension Test Matrix," it is indicated that IC performance test will be conducted at medium power (MP) level, but not at high power (HP) level. Since one of the objectives of the test should be to demonstrate IC structural integrity, the staff believes that IC performance test at HP will be better justified because the operating conditions at HP are expected to be more challenging to the structural integrity of IC. The staff, therefore, requests that the IC performance test be conducted at HP, rather than MP level.

GE Response

The ascension test matrix (Table 14.2-1 of the DCD Tier 2) proposed that the Isolation Condenser System (ICS) be tested at medium (up to about 75% rated) power. The pressure and temperature affects the structural integrity of the IC, not the reactor power level. When the reactor startup begins, the reactor is brought to the rated pressure and temperature at approximately 5% power, as stated in the DCD Tier 2 Subsection 14.2.1.3. As the power level increases the same rated pressure and temperature are maintained; therefore it is sufficient to conduct the IC test at Medium Power. Testing at High Power would not be more challenging from the viewpoint of structural integrity of the ICS.

No DCD change is required.