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

GE Energy

MFN 07-258

Docket No. 52-010

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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. 82 – RAI Number 21.6-93**

Enclosure 1 contains GE'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,

Kathy Sedney for

James C. Kinsey
Project Manager, ESBWR Licensing

General Electric Company

Reference:

    1. MFN 06-515, Letter from U.S. Nuclear Regulatory Commission to David Hinds, *Request for Additional Information Letter No. 82 Related to the ESBWR Design Certification Application*, December 7, 2006

Enclosures:

    1. MFN 07-258 – Response to Portion of NRC Request for Additional Information Letter No. 82 – Related to ESBWR Design Certification Application – RAI Number 21.6-93

cc: AE Cubbage   USNRC (with enclosures)
        GB Stramback GE/San Jose (with enclosures)
        BE Brown   GE/ Wilmington (with enclosures)
        eDRF   0064-2664

Enclosure 1

MFN 07-258

Response to Portion of NRC Request for

Additional Information Letter No. 82

Related to ESBWR Design Certification Application

RAI Number 21.6-93

NRC RAI 21.6-93

NEDE-32176P, Rev. 3 "TRACG Model Description," states that "The default correlation for thermal conductivity (k) for unmolten UO2 has been updated to be compatible with the model used in PRIME03." For DCD Tier 2 Revision 2 Chapter 4, 6, and 15 TRACG04 analyses of LOCA, Stability, AOOs, and ATWS, please state if you used the GSTRM or PRIME03 model for fuel thermal conductivity. In addition, how does a TRACG04 user specify the use of either model in a TRACG04 input deck?

Provide the staff the location in the TRACG04A,P User's Manual (NEDC-32956P, Rev. 0 UM-0149, Rev. 0) that provides this guidance.

GE Response

For DCD Revision 2 and 3 the LOCA, Stability, AOO, infrequent event and ATWS TRACG04 analyses use the default correlation for thermal conductivity for unmolten UO2. The model is described in C.1.4.1 of Reference 21.6-93-1. Please note that this TRACG04 UO2 thermal conductivity model is not identical to the PRIME03 model but adds the effects of exposure and gadolinia content to the GESTR (TRACG02) model. Therefore, the TRACG04 model can be said to be an enhancement of the GESTR model that is compatible with the PRIME03 model.

The TRACG02 correlation for thermal conductivity for unmolten UO2 can be selected by setting PIRT227 to a value less than 1.0. See Table D-2 on page 237 of the TRACG04 User's Manual (Reference 21.6-93-2).

References

21.6-93-1 GE Energy Nuclear, "TRACG Model Description", NEDE–32176P, Class III (proprietary), April 2006.

21.6-93-2 GE Nuclear Energy, "TRACG04A,P User's Manual", UM–136, Class 3 (proprietary), December 2005.

Affected Documents

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