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MFN 07-381

Docket No. 52-010

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U.S. Nuclear Regulatory Commission
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Subject: **Response to Portion of NRC Request for Additional Information
Letter No. 90 – Related to ESBWR Design Certification Application –
RAI Number 21.6-101**

Enclosure 1 contains GHNEA'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,



James C. Kinsey
Project Manager, ESBWR Licensing

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Reference:

1. MFN 07-084, Letter from U.S. Nuclear Regulatory Commission to David Hinds, *Request for Additional Information Letter No. 90 Related to the ESBWR Design Certification Application*, January 29, 2007

Enclosures:

1. MFN 07-381 – Response to Portion of NRC Request for Additional Information Letter No. 90 – Related to ESBWR Design Certification Application – RAI Number 21.6-101

cc: AE Cabbage USNRC (with enclosures)
DH Hinds GHNEA Wilmington (with enclosures)
BE Brown GHNEA Wilmington (with enclosures)
eDRF 0000-0065-5487

Enclosure 1

MFN 07-381

Response to Portion of NRC Request for

Additional Information Letter No. 90

Related to ESBWR Design Certification Application

RAI Number 21.6-101

NRC RAI 21.6-101

Question Summary: TRACG04 Prediction of Dry Well Annulus Temperature for GIRAFFE GS1 Test

Full Text: During the audit of TRACG04 for ESBWR loss of coolant accident analyses, the staff viewed comparisons between data and TRACG04 for the GIRAFFE GS1 test from the TRACG04 Software Test Report (eCPER 0000-0009-7157-00). The results show significant differences between TRACG02 and TRACG04. TRACG04 under predicts the dry well annulus temperature by approximately 60K for long durations. The staff was unable to locate information on this comparison in the TRACG04 ESBWR qualification that has been submitted to the NRC ("Update of ESBWR TRACG Qualification for NEDC-32725P and NEDC-33080P Using the 9-Apr-2004 Program Library Version of TRACG04," MFN 04-059, June 6, 2004). Please explain these differences.

GE Response

The TRACG04 Software Test Report (eCPER 0000-0007-7157-00) documented TRACG comparisons to three GIRAFFE Integral System Tests: Test STEP8_J8, Test GS1 and Helium Test H1.

The comparison to Test STEP8_J8 was performed in 2003 using TRACG02V, TRACG02A and TRACG04A(X). The comparisons of drywell annulus temperatures between TRACG and experimental data are shown in Figure 2.3.3-9 in the Software Test Report. This figure shows significant difference between TRACG02 and TRACG04A(X), and TRACG04A(X) under predicts the data by approximately 60K for long durations. The Test STEP8_J8 is used here for the purpose of model development and evaluation.

The Software Test Report also points out that: (1) the comparison was run with a very early prototype version of TRACG04X and the results should be used with caution when making conclusions, (2) these earlier TRACG02 comparisons are retained in the Software Test Report because the most recent calculations performed with TRACG04 (V40 and later) represent only a subset of the original qualification cases.

The earlier TRACG02 comparisons are supplemented by additional comparisons for the Test GS1 that was calculated with TRACG04A, and documented in the Software Test Report.

The TRACG04 ESBWR qualification report ("Update of ESBWR TRACG Qualification for NEDC-32725P and NEDC-33080P Using the 9-Apr-2004 Program Library Version of TRACG04," MFN 04-059, June 6, 2004) documents the TRACG comparisons to Test GS1, and does not include the comparisons to Test STEP8_J8.

DCD Impact

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