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Subject: **Response to Portion of NRC Request for Additional Information Letter No. 69 – RAI Number 21.6-92**

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

D068

Reference:

1. MFN 06-381, Letter from U.S. Nuclear Regulatory Commission to David Hinds, *Request for Additional Information Letter No. 69 Related to the ESBWR Design Certification Application*, October 11, 2006

Enclosures:

1. MFN 07-257 – Response to Portion of NRC Request for Additional Information Letter No. 69 – Related to ESBWR Design Certification Application – RAI Number 21.6-92

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 07-257

Response to Portion of NRC Request for

Additional Information Letter No. 69

Related to ESBWR Design Certification Application

RAI Number 21.6-92

NRC RAI 21.6-92

For each analysis performed in Chapters 4, 6 and 15, update the DCD Tier 2 to include the specific codes used including exact version, revision, and modification designations. In instances where a suite of codes is used (i.e., TRACG with a PANACEA wrap up file and GSTRM gap conductance model), include this information for each code used as part of the suite. Identify the software test report number associated with each production code.

GE Response

The table shown below will be added to the next revision of DCD Tier 2 Chapter 15. The table shows the codes used for each safety analysis shown in Chapters 4, 6 and 15 based on analysis provided in Revision 3 of the DCD. The table provided in the DCD will be based on the analysis provided in the then current revision. The table lists a code only if there are results presented in the DCD and the results are specific to the ESBWR. The table does not list codes related to component stress, dynamic and seismic analyses of structural, mechanical and piping components.

The table shown also provides response to RAI 21.6-96 part A:

"State what version of TRACG04 (A or P) is being used for all ESBWR analyses using TRACG in DCD Chapters 4, 6 and 15."

The software testing of computer programs used in ESBWR DCD calculations are filed in GEs document management system and made available for NRC review.

Affected Documents

Table 15.0-8 will be added to DCD Tier 2, Section 15.0:

Table 15.0-8

ESBWR Safety Analysis Codes

Safety Analysis	Analysis Code
Stability Evaluation (Chapter 4)	TRACG04[1]
Reactor Building Compartment Pressurization Analysis (Chapter 6)	CONTAIN 2.0
Loss of Feedwater Heating	TRACG04[1]
Closure of One Turbine Control Valve	TRACG04[1]
Generator Load Rejection with Turbine Bypass	TRACG04[1]
Generator Load Rejection with a Single Failure in the Turbine Bypass System	TRACG04[1]
Turbine Trip with Turbine Bypass	TRACG04[1]
Turbine Trip with a Single Failure in the Turbine Bypass System	TRACG04[1]

Table 15.0-8

ESBWR Safety Analysis Codes

Safety Analysis	Analysis Code
Closure of One Main Steamline Isolation Valve	TRACG04[1]
Closure of All Main Steamline Isolation Valves	TRACG04[1]
Loss of Condenser Vacuum	TRACG04[1]
Loss of Shutdown Cooling Function of RWCU/SDC	N/A
Inadvertent Isolation Condenser Initiation	TRACG04[1]
Runout of One Feedwater Pump	TRACG04[1]
Opening of One Turbine Control or Bypass Valve	TRACG04[1]
Loss of Non-Emergency AC Power to Station Auxiliaries	TRACG04[1]
Loss of All Feedwater Flow	TRACG04[1]
Loss of Feedwater Heating With Failure of Selected Control Rod Run-In	TRACG04[1] / RADTRAD 3.03
Feedwater Controller Failure – Maximum Demand	TRACG04[1]
Pressure Regulator Failure - Opening of All Turbine Control and Bypass Valves	TRACG04[1]
Pressure Regulator Failure – Closure of All Turbine Control and Bypass Valves	TRACG04[1]
Generator Load Rejection with Total Turbine Bypass Failure	TRACG04[1]
Turbine Trip with Total Turbine Bypass Failure	TRACG04[1]
Control Rod Withdrawal Error During Refueling	N/A
Control Rod Withdrawal Error During Startup	N/A
Control Rod Withdrawal Error During Power Operation	N/A
Fuel Assembly Loading Error, Mislocated Bundle	N/A
Fuel Assembly Loading Error, Misoriented Bundle	N/A
Inadvertent SDC Function Operation	N/A
Inadvertent Opening of a Safety/Relief Valve	TRACG04[1]
Inadvertent Opening of a Depressurization Valve	N/A
Stuck Open Safety/Relief Valve	TRACG04[1]
Liquid-Containing Tank Failure	RADTRAD 3.03
Fuel Handling Accident	RADTRAD 3.03

Table 15.0-8

ESBWR Safety Analysis Codes

Safety Analysis	Analysis Code
LOCA Inside Containment – Containment Pressurization	TRACG04[2]
LOCA Inside Containment – ECCS Performance	TRACG04[2]
LOCA Inside Containment – Radiological	RADTRAD 3.03[3]
Main Steamline Break Outside Containment	RADTRAD 3.03
Control Rod Drop Accident	N/A
Feedwater Line Break Outside Containment	CONAC04A
Failure of Small Line Carrying Primary Coolant Outside Containment	RADTRAD 3.03
RWCU/SDC System Line Failure Outside Containment	RADTRAD 3.03
Spent Fuel Cask Drop Accident	N/A
MSIV Closure With Flux Scram (Overpressure Protection)	TRACG04[1]
Shutdown Without Control Rods (i.e., SLC system shutdown capability)	PANAC11
Shutdown from Outside Main Control Room	N/A
Anticipated Transients Without Scram	TRACG04[1]
Station Blackout	TRACG04[1]
Safe Shutdown Fire	N/A
Waste Gas System Leak or Failure	N/A

1 TRACG04A (Alpha VMS version) is used with core inputs from PANAC11 and fuel gap thermal conductivity input from GSTRM07A.
2 TRACG04P (PC version) is used with fuel gap thermal conductivity input from GSTRM07A.
3 RADTRAD 3.03 is used with inputs from MELCOR 1.8.6 YK.