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**Subject: Response to Portion of NRC Request for Additional Information
Letter No. 51 Related to ESBWR Design Certification Application –
Hydraulic Control Unit/Main Steam Piping – RAI Numbers 3.2-16
S01 and 3.2-21 S01**

Enclosure 1 contains a supplemental response to the subject RAIs resulting from a March 6, 2007 e-mail request from the NRC. GE's original responses were 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
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References:

1. MFN 06-308, Letter from David Hinds to U.S. Nuclear Regulatory Commission, *Response to NRC Request for Additional Information Letter No. 51 Related to ESBWR Design Certification Application – Classification of Structures, Systems and Components – RAI Numbers 3.2-1 through 3.2-62*, September 8, 2006
2. MFN 06-308, Supplement 1, Letter from James C. Kinsey to U.S. Nuclear Regulatory Commission, *Response to Portion of NRC Request for Additional Information Letter No. 51 Related to ESBWR Design Certification Application – Classification of Structures, Systems and Components – RAI Number 3.2-19 S01*, March 22, 2007
3. MFN 06-308, Supplement 2, Letter from James C. Kinsey to U.S. Nuclear Regulatory Commission, *Response to Portion of NRC Request for Additional Information Letter No. 51 Related to ESBWR Design Certification Application – RWCU System – RAI Number 3.2-34 S01*, March 26, 2007
4. MFN 06-308, Supplement 3, Letter from James C. Kinsey to U.S. Nuclear Regulatory Commission, *Response to Portion of NRC Request for Additional Information Letter No. 51 Related to ESBWR Design Certification Application – Classification of Structures, Systems and Components – RAI Numbers 3.2-3 S01 and 3.2-7 S01*, March 26, 2007
5. MFN 06-308, Supplement 4, Letter from James C. Kinsey to U.S. Nuclear Regulatory Commission, *Response to Portion of NRC Request for Additional Information Letter No. 51 Related to ESBWR Design Certification Application – Turbine Main Steam System – RAI Number 3.2-1 S01*, March 30, 2007

Enclosure:

1. MFN 06-308, Supplement 5 – Response to Portion of NRC Request for Additional Information Letter No. 51 Related to ESBWR Design Certification Application – Hydraulic Control Unit/Main Steam Piping – RAI Numbers 3.2-16 S01 and 3.2-21 S01

cc: AE Cabbage USNRC (with enclosures)
DH Hinds GE (with enclosures)
RE Brown GE (w/o enclosures)
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Enclosure 1

MFN 06-308

Supplement 5

Response to Portion of NRC Request for

Additional Information Letter No. 51

Related to ESBWR Design Certification Application

Hydraulic Control Unit/Main Steam Piping

RAI Numbers 3.2-16 S01 and 3.2-21 S01

For historical purposes, the original text of RAIs 3.2-16 and 3.2-21 and the GE response is included. The original attachments and DCD mark-ups are not included to prevent confusion.

NRC RAI 3.2-16

In accordance with SRP 3.2.2 and RG 1.26 guidance, the condenser anchorage and piping inlet nozzles to the condenser should be seismically analyzed. Therefore, this portion of the main steam system should be designated at least Quality Group D, Quality Assurance E, and Seismic Category II. Please revise Table 3.2-1, Component B21 accordingly.

GE Response

The Main Condenser has a Non-safety related, Non-seismic design classification, but the inlet piping, inlet nozzles and condenser anchorage are seismically analyzed for SSE. Quality Groups and Seismic Classification will be shown on Figure 3.2-1, which will be added to the DCD.

Lines down stream of the seismic restraint are classified as system N11 on the P&ID. Therefore, these items are covered in DCD Table 3.2-1, Section N11, and not B21. Table 3.2-1, Section N11, will be revised in accordance with the attached markup. The wording has been revised to reflect Regulatory Guide 1.29 Section C, specifically item "e", piping 63.5 mm (2.5 inches) and larger will be analyzed to withstand SSE loads.

Figure 3.2-1 will be added to the DCD Section 3.2 as shown in the attached markup.

NRC RAI 3.2-16 S01

DCD Tier 2, Revision 3, Table 1.9-21b identifies that there are no exceptions to Regulatory Guide (RG) 1.29, Rev. 3. DCD Tier 2, Revision 3, Section 3.2.1 also identifies that the seismic classifications indicated in Table 3.2-1 are consistent with the guidelines of Regulatory Guide 1.29. Regulatory Position C.1.e in RG 1.29 identifies the portions of steam systems in boiling-water reactors from the containment isolation valves up to but not including the turbine stop valve and connected piping of a nominal size 2.5 inches and larger up to the first valve that is either normally closed or capable of automatic closure as Seismic Category I. However, Table 3.2-1 and Figure 3.2-1 for the N11 Turbine Main Steam System submitted in response to RAI 3.2-16 identifies the Turbine Main Steam System piping from the seismic interface restraint to the turbine stop valves and the connected branch lines equal to or larger than 2.5 inches as Seismic Category II. This seismic classification is basically consistent with Standard Review Plans (SRPs) 3.2.1 and 3.2.2 that, as an alternative to RG 1.29, considers it acceptable to classify these lines as nonsafety-related and non-seismic Category I, but analyzed using a dynamic seismic analysis method to demonstrate structural integrity under SSE loading conditions. Therefore, it is requested that

GE clarify in DCD Tier 2 Table 1.9-21b and Section 3.2.1 that this alternate classification, that is consistent with SRPs 3.2.1 and 3.2.2, represents an exception to RG 1.29.

GE Response

GE agrees and will identify the Main Steam Piping seismic classification as an exception to RG 1.29 in DCD Tier 2 Table 1.9-21b and Table 17.0-1.

DCD Impact

DCD Tier 2 Table 1.9-21b will be revised as noted in the attached markup. The same change will be made to DCD Tier 2 Table 17.0-1.

NRC RAI 3.2-21

Table 3.2-1, Component C12, Item 3: The Table provides no quality group designation for the Hydraulic Control Unit (HCU) and subcomponents. Table footnote (8) states that for the HCU, the quality groups are not considered applicable to the "specialty" subcomponent parts therein. However, consistent with SRP 3.2.2 and RG 1.26 guidance regarding components designed for reactor shutdown, these should be Quality Group B components. It is the staff position that, because of the safety importance of the reactivity control function, all HCU assemblies and subcomponents, must be designated Quality Group B components. Please revise the Table and footnote (8) accordingly.

GE Response

The HCU classifications specified in Table 3.2-1, including Table footnote (8) relating to quality group, are identical to the HCU classifications that have been well established and accepted for many decades. This includes the entire BWR operating fleet and the ABWR certified design. Previous NRC acceptance of GE's position is evident by the approval of these plant designs. Because the function and design of the ESBWR HCU is the same as the previous designs, GE believes the same classification is appropriate and correct for the ESBWR and consistent with accepted industry practice.

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

NRC RAI 3.2-21 S01

The response to RAI 3.2-21 identified that the hydraulic control unit (HCU) classifications have been well established and accepted for many decades for both the entire BWR operating fleet and the ABWR certified design. GE believes that the same classification is appropriate for the ESBWR and is consistent with industry practice. The staff concurs that the HCU classification has been standard industry practice that has been accepted by the NRC and no change in classification is required, but this industry practice should be specifically identified as an exception to RG 1.26 in DCD Tier 2 Section 1.9. GE is requested to clarify in DCD Tier 2 Table 1.9-21b that this represents an exception to RG 1.26.

GE Response

GE agrees and will identify the Hydraulic Control Unit (HCU) quality group classification as an exception to RG 1.26 in DCD Tier 2 Table 1.9-21b.

DCD Impact

DCD Tier 2 Tables 1.9-21b and 17.0-1 will be revised as noted in the attached markups.

Table 1.9-21b

ESBWR Compliance with Quality Related Regulatory Guides

Regulatory Guide No.	Revision	Comments
1.8	3	COL Holder scope
1.26	3	No exceptions. Except for the alternate Quality Group Classification for the Hydraulic Control Unit per Note 8 of Table 3.2-1.
1.28	3	Except for NRC accepted alternate positions as documented in Table 2-1 of Reference 1.9-2.
1.29	3	No exceptions. Except for Main Steam Piping from seismic interface restraint to turbine stop valves as identified in Table 3.2-1 and Figure 3.2-1.
1.30	0	No exceptions.
1.33	2	COL Holder scope.
1.37	0	Except for NRC accepted alternate positions as documented in Table 2-1 of Reference 1.9-2.
1.38	2	Except for NRC accepted alternate positions as documented in Table 2-1 of Reference 1.9-2.
1.39	2	No exceptions.
1.58	withdrawn	Superseded by Reg. Guide 1.28, Rev. 3.
1.64	withdrawn	Superseded by Reg. Guide 1.28, Rev. 3, except for NRC accepted alternate positions as documented in Table 2-1 of Reference 1.9-2.
1.74	withdrawn	Superseded by Reg. Guide 1.28, Rev. 3.
1.88	withdrawn	Superseded by Reg. Guide 1.28, Rev. 3.
1.94	1	COL Holder scope
1.97	4	No exceptions.
1.116	0-R	No exceptions.
1.123	withdrawn	Superseded by Reg. Guide 1.28, Rev. 3.
1.143	2	No exceptions.
1.144	withdrawn	Superseded by Reg. Guide 1.28, Rev. 3.
1.146	withdrawn	Superseded by Reg. Guide 1.28, Rev. 3.
1.152	2	No exceptions.

Table 17.0-1
Compliance With Quality Assurance Related Regulatory Guides

Regulatory Guide No.	Revision	Comments
RG 1.8	3	COL holder scope
RG 1.26	3	No exception Except for the alternate Quality Group Classification for the Hydraulic Control Unit per Note 8 of Table 3.2-1.
RG 1.28	3	Except for NRC-accepted alternate positions in Table 2-1 of Reference 17.0-1
RG 1.29	3	No exception Except for Main Steam Piping from seismic interface restraint to turbine stop valves as identified in Table 3.2-1 and Figure 3.2-1.
RG 1.30	0	No exception
RG 1.33	2	COL holder scope
RG 1.37	0	Except for NRC-accepted alternate positions in Table 2-1 of Reference 17.0-1
RG 1.38	2	Except for NRC-accepted alternate positions in Table 2-1 of Reference 17.0-1
RG 1.39	2	No exception
RG 1.54	1	No exception
RG 1.58	Withdrawn	Superseded by Regulatory Guide 1.28, Rev. 3
RG 1.64	Withdrawn	Superseded by Regulatory Guide 1.28, Rev. 3, except for NRC-accepted alternate positions in Table 2-1 of Reference 17.0-1
RG 1.74	Withdrawn	Superseded by Regulatory Guide 1.28, Rev. 3
RG 1.88	Withdrawn	Superseded by Regulatory Guide 1.28, Rev. 3
RG 1.94	1	COL holder scope
RG1.97	4	No exception
RG 1.116	0-R	No exception
RG 1.123	Withdrawn	Superseded by Regulatory Guide 1.28, Rev. 3
RG 1.143	2	No exception
RG 1.144	Withdrawn	Superseded by Regulatory Guide 1.28, Rev. 3