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U.S. Nuclear Regulatory Commission
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Subject: Response to Portion of NRC RAI Letter No. 228 Related to ESBWR Design Certification Application - DCD Tier 2 Section 3.8 – Seismic Category I Structures; RAI Number 3.8-124

The purpose of this letter is to submit the GE Hitachi Nuclear Energy (GEH) response to the U.S. Nuclear Regulatory Commission (NRC) Request for Additional Information (RAI) sent by NRC letter dated August 6, 2008 (Reference 1). RAI Number 3.8-124 is addressed in Enclosure 1.

If you have any questions or require additional information, please contact me.

Sincerely,

Richard E. Kingston

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Vice President, ESBWR Licensing

D068
NRO

Reference:

1. MFN 08-623 Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, GEH, *Request For Additional Information Letter No. 228 Related to ESBWR Design Certification Application*, dated August 6, 2008

Enclosure:

1. Response to Portion of NRC RAI Letter No. 228 Related to ESBWR Design Certification Application - DCD Tier 2 Section 3.8 – Seismic Category I Structures; RAI Number 3.8-124

cc:	AE Cubbage	USNRC (with enclosures)
	RE Brown	GEH/Wilmington (with enclosures)
	DH Hinds	GEH/Wilmington (with enclosures)
	eDRF	0000-0089-5243 (RAI 3.8-124)

ENCLOSURE 1

MFN 08-744

Response to Portion of NRC RAI Letter No. 228
Related to ESBWR Design Certification Application

DCD Tier 2 Section 3.8 – Seismic Category I Structures

RAI Number 3.8-124

NRC RAI 3.8-124

Table 3.8-5, which identifies the welding activities and weld examination requirements for the containment vessel, was revised in DCD Rev. 5. Among the revisions made, a new section was added to provide the non-destructive examination (NDE) requirements for the containment liner. GEH is requested to explain why the option of UT (ultrasonic) or MT (magnetic particle) or PT (liquid penetrant) examinations are specified for weld Category D (nonbutt welds) and weld Categories E, F, G, J, and full penetration H welds. According to Article CC-5521 of ASME Code Section III, Division 2, these welds shall be examined by UT or MT. Separately, Article CC-5521, paragraph (f) indicates that PT shall be substituted for MT examination when austenitic welds are used. The welding requirements presented in DCD Table 3.8-5 do not appear to be consistent with the requirements in Article CC-5521 of the ASME Code.

GEH Response

Table 3.8-5 will be revised to clarify that PT of Category D (nonbutt welds) and weld Categories E, F, G, J, and full penetration H welds is to be substituted for magnetic particle examination only for austenitic welds to be consistent with the requirements of Article CC-5521 of the ASME Code.

DCD Impact

DCD Tier 2, Table 3.8-5, will be revised in Revision 6 as noted on the attached DCD markup page.

Table 3.8-5

Welding Activities and Weld Examination Requirements for Containment Vessel

Component	Weld Type	NDE Requirements
Steel components[1] (no concrete backing, ASME Section III, Division 1, Subsection NE)	Category A, Butt welds (Long'l)	RT[2]
	Category B, Butt welds (Circ.)	RT[2][3]
	Category C, Butt welds	RT[2]
	Category C, Nonbutt welds	UT or MT or PT
	Category D, Butt welds	RT[2]
	Category D, Nonbutt welds	UT or MT or PT
	Structural attachment welds a) Butt welds b) Nonbutt welds	 RT[2] UT or MT or PT
	Special welds, Weld metal cladding	PT
Containment liner[4] (with concrete backing, ASME Section III, Division 2, Subsection CC)	Category A, Butt welds (Long'l)	RT[5]
	Category B, Butt welds (Circ.)	RT[5]
	Category D, Butt welds	RT[5]
	Category D, Nonbutt welds	UT or MT or PT[6]
	Categories E, F, G, J, and Full Penetration H	UT or MT or PT[6]
	Structural attachment welds	MT or PT
	Special welds, Weld metal cladding	PT

NOTES:

(1) Welded joint locations of the Categories are shown in Figure NE-3351-1 of the ASME Section III. Welding activities and welding examinations comply with the provisions of the ASME Section III Subsection NE.
Backing bars are not used in weld joints in flued-head containment penetration assemblies or other penetration sleeves and process piping

(2) When the joint detail does not permit radiographic examination, UT plus MT or PT is substituted as permitted by ASME Section III, Division 1, subarticle NE-5280.

(3) Surface examination of the root pass and completed weld is substituted in electrical penetration assemblies for RT per ASME Section III, Division 1, Subarticles NE-3352.2 (b) and NE-5280.

(4) Welded joint locations of the Categories are shown in Figure CC-3831-1 of the ASME Section III. Welding activities and welding examinations comply with the provisions of the ASME Section III Subsection CC.

(5) RT is used for welds without backup bars. For welds with backup bars MT or UT is used.

(6) Only for austenitic welds, liquid penetrant shall be substituted for magnetic particle examination.

LEGEND:

RT – Radiographic Examination
MT – Magnetic Particle Examination
PT – Liquid Penetrant Examination
UT – Ultrasonic Examination