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MFN 08-236

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Subject: **Response to Portion of NRC Request for Additional Information Letter No. 100 Related to ESBWR Design Certification Application - Applicable ASME Code Edition and Addenda - RAI Number 5.2-63**

Enclosure 1 contains the GE Hitachi Nuclear Energy (GEH) response to the subject NRC RAI transmitted via the Reference 1 letter.

Verified DCD changes associated with this RAI response are identified in the enclosed DCD markups by enclosing the text within a black box. The marked-up pages may contain unverified changes in addition to the verified changes resulting from this RAI response. Other changes shown in the markup(s) may not be fully developed and approved for inclusion in DCD Revision 5.

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

Sincerely,

James C. Kinsey

James C. Kinsey
Vice President, ESBWR Licensing

D068
NRO

Reference:

1. MFN 07-327, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, *Request for Additional Information Letter No. 100 Related to ESBWR Design Certification Application*, May 30, 2007

Enclosure:

1. MFN 08-236 - Response to Portion of NRC Request for Additional Information Letter No. 100 Related to ESBWR Design Certification Application - Applicable ASME Code Edition and Addenda - RAI Number 5.2-63

cc:

AE Cubbage	USNRC (with enclosures)
DH Hinds	GEH/Wilmington (with enclosures)
GB Stramback	GEH/San Jose (with enclosures)
RE Brown	GEH/Wilmington (with enclosures)
eDRF	0000-0079-6871

Enclosure 1

MFN 08-236

Response to Portion of NRC Request for Additional Information Letter No. 100 Related to ESBWR Design Certification Application

Applicable ASME Code Edition and Addenda

RAI Number 5.2-63

Verified DCD changes associated with this RAI response are identified in the enclosed DCD markups by enclosing the text within a black box. The marked-up pages may contain unverified changes in addition to the verified changes resulting from this RAI response. Other changes shown in the markup(s) may not be fully developed and approved for inclusion in DCD Revision 5.

NRC RAI 5.2-63:

DCD, Tier 2, Revision 3, Chapter 5.2.4 indicates that the development of the preservice and inservice inspection (PSI/ISI) program plans is the responsibility of the Combined Operating License (COL) Holder and shall be based on the ASME Code, Section XI, Edition and Addenda specified in the Table 1.9-22. DCD, Tier 2, Revision 3, Table 1.9-22, "Industrial Codes and Standards Applicable to ESBWR," references the 2001 Edition through the 2003 Addenda. Chapter 6.6 indicates that the development of the PSI/ISI program plans will be the responsibility of the COL Holder, and is based on the ASME Code, Section XI, Edition and Addenda specified in accordance with 10 CFR 50.55a. Chapter 6.6 further states that the COL Holder specifies the Edition of ASME Code to be used, based on the date of issuance of the construction permit or license, per 10 CFR 50.55a. There appears to be an inconsistency in the DCD between the Editions and Addenda of ASME Section XI that the COL Applicants will use to develop their PSI/ISI programs.

Please revise the DCD in Sections 6.6 and 5.2.4 to clearly and accurately state the requirements governing the applicable ASME Code Edition and Addenda used by the COL Applicant to develop PSI/ISI programs.

GEH Response:

The apparent inconsistency in Revision 3 of the DCD between the ASME Code Section XI Edition and Addenda that will be used by the COL Holder to develop their PSI/ISI programs and what is specified in the DCD Tier 2 will be clarified. For the ESBWR standard design, the Edition/Addenda approved by the NRC at the time the ESBWR certification application was submitted is specified in DCD Tier 2, Table 1.9-22. Those requirements of ASME Code Section XI were used as the basis for the DCD description. The COL Holder, in contrast, develops their PSI/ISI programs using the Edition/Addenda approved in 10 CFR 50.55a(b) 12 months before initial fuel load.

DCD Impact:

DCD Tier 2, Subsections 5.2.4 and 6.6 will be revised as shown in the attached markups.

5.2.4 Preservice and Inservice Inspection and Testing of Reactor Coolant Pressure Boundary

This subsection describes the preservice and inservice inspection and system pressure test programs for NRC Quality Group A, ASME Boiler and Pressure Vessel (B&PV) Code, Class 1 items. It describes these programs implementing the requirements of Subsection IWB of the ASME B&PV Code Section XI.[1]

10 CFR 50.55a prescribes Section XI Editions and Addenda applicable to inservice inspection programs, subject to limitations and modifications found therein. Additionally, 10 CFR 50.55a provides an allowance to request alternatives to or relief from Code requirements. Section XI requirements can be modified by invoking approved Section XI Code Cases. Approved Code Cases are listed in Regulatory Guide 1.147.

The ESBWR is designed~~design to~~for the ~~perform~~ performance of preservice and inservice ~~inspection~~ inspections including consideration ~~is based on~~of the requirements of the ASME Code, Section XI, Edition/Addenda as specified in Table 1.9-22. The development of ~~the~~ preservice and inservice inspection programs~~program plans~~ is the responsibility of the COL Holder and shall be based on the ASME Code, Section XI, Edition and Addenda approved in 10 CFR 50.55a(b) 12 months before initial fuel load~~specified and Table 1.9-22.~~ (See Subsection 5.2.6 for COL information requirements). The requirements are described in Subsections 5.2.4.1 through 5.2.4.10. ~~The ASME Code requirements discussed in this section are provided for information.~~

5.2.4.1 Class 1 System Boundary

Definition

The Class 1 system boundary for both preservice and inservice inspection programs and the system pressure test program includes all those items within the Class 1 and Quality Group A boundary on the piping and instrumentation schematics. Based on 10 CFR 50 and Regulatory Guide 1.26, the boundary includes the following:

- Reactor pressure vessel;
- Portions of the Main Steam System;
- Portions of the Feedwater System;
- Portions of the Standby Liquid Control System;
- Portions of the Reactor Water Cleanup/Shutdown Cooling (RWCU/SDC) System;
- Portions of the Isolation Condenser ~~(ICS)~~ System (ICS); and
- Portions of the Gravity-Driven Cooling (GDCS) System.

Those portions of the above systems within the Class 1 boundary are those items that are part of the RCS up to and including any and all of the following:

[1] Items as used in this subsection are products constructed under a certificate of authorization (NCA-3120) and material (NCA-1220). See Section III, NCA-1000, footnote 2.

6.6 PRESERVICE AND INSERVICE INSPECTION AND TESTING OF CLASS 2 AND 3 COMPONENTS AND PIPING

The ESBWR meets requirements for periodic inspection and testing of Class 2 and 3 systems in GDC 36, 37, 39, 40, 42, 43, 45 and 46, as specified in part in 10 CFR Section 50.55a, and as detailed in Section XI of the ASME Code. Compliance with the preservice and inservice examinations of 10 CFR 50.55a, as detailed in Section XI of the Code, satisfies in part the requirements of GDC 36, 37, 39, 40, 42, 43, 45 and 46. ESBWR meets SRP 6.6, Revision 1 acceptance criteria by meeting the ISI requirements of these GDC and 10 CFR 50.55a for the areas of review described in Subsection I of the SRP.

This subsection describes the preservice and inservice inspection and system pressure test programs for Quality Groups B and C, that is, ASME Code Class 2 and 3 items, respectively, as defined in Table 3.2-3. This section describes those programs implementing the requirements of ASME Boiler and Pressure Vessel (B&PV) Code, Section XI, Subsections IWC and IWD.

A preservice and inservice inspection program for Class 2 and 3 components and piping is based on the ASME code, Section XI, Edition and Addenda specified in accordance with 10 CFR 50.55a subject to limitations and modifications found therein. Additionally, 10 CFR 50.55a provides an allowance to request alternatives to or relief from ASME Section XI Code requirements. The development of preservice and inservice inspection programs is the responsibility of the COL Holder, and shall be based on the ASME Code, Section XI, Edition and addenda approved in 10 CFR 50.55a(b) twelve months before initial fuel load. The COL Applicant is responsible for providing a full description of the PSI/ISI programs and augmented inspection programs for Class 2 and 3 components and piping by supplementing, as necessary, the information in Section 6.6. The COL Applicant will also provide milestones for their implementation (COL 6.6-1-A). ~~The COL Applicant will provide a description of this program and its implementation. (See Subsection 6.6.11.)~~

6.6.1 Class 2 and 3 System Boundaries

The Class 2 and 3 system boundaries for both preservice and inservice inspection programs and the system pressure test program item boundaries include all or part of the following:

- Nuclear Boiler System (NBS).
- Isolation Condenser System (ICS).
- Control Rod Drive (CRD) system.
- Standby Liquid Control (SLC) system.
- Gravity Driven Cooling System (GDCS).
- Fuel and Auxiliary Pools Cooling System (FAPCS).
- Reactor Water Cleanup/Shutdown Cooling (RWCU/SDC) system.
- Chilled Water System (CWS).

~~□Passive Containment Cooling System (PCCS)~~

- Containment Inerting System.