



GE Energy

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MFN 06-531

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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. 80 – Integrity of Reactor Coolant Pressure Boundary –
RAI Number 5.2-59**

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,

A handwritten signature in cursive script that reads "Kathy Sedney for".

James C. Kinsey
Project Manager, ESBWR Licensing

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Reference:

1. MFN 06-419, Letter from U.S. Nuclear Regulatory Commission to David Hinds, *Request for Additional Information Letter No. 80 Related to the ESBWR Design Certification Application*, November 2, 2006

Enclosures:

1. MFN 06-531 – Response to Portion of NRC Request for Additional Information Letter No. 80 – Integrity of Reactor Coolant Pressure Boundary – RAI Number 5.2-59

cc: AE Cabbage USNRC (with enclosures)
GB Stramback/GE/San Jose (with enclosures)
eDRF 0062-5970

Enclosure 1

MFN 06-531

**Response to Portion of NRC Request for
Additional Information Letter No. 80
Related to ESBWR Design Certification Application**

Integrity of Reactor Coolant Pressure Boundary

RAI Numbers 5.2-59

NRC RAI 5.2-59:

Question Summary: Provide clarification and revise the DCD to reference the correct Class of piping

Full Text: In the paragraph "Hydrostatic Pressure Tests" in DCD Tier 2, Revision 1, Section 5.2.4.6, Class 2 and 3 piping are referenced, but DCD Section 5.2.4 applies to reactor coolant pressure boundary (RCPB) piping. Please provide clarification and revise the DCD to reference the correct Class of piping.

GE Response:

The "Hydrostatic Pressure Tests" paragraph in DCD Subsection 5.2.4.6 is applicable to Class 1 pressure retaining components and piping. Therefore, this paragraph will be revised by replacing "Class 2 or 3" with "Class 1".

DCD Impact:

DCD Tier 2, Subsection 5.2.4.6 will be revised as noted on the attached markup.

accordance with the requirements of IWA-2200. The recorded results shall meet the acceptance standards specified in IWB-3400.

5.2.4.6 System Leakage and Hydrostatic Pressure Tests

System Leakage Tests

As required by Section XI, IWB-2500 for Category B-P, a system leakage test shall be performed in accordance with IWB-5200 on all Class 1 components and piping within the pressure-retaining boundary following each refueling outage. For the purposes of the system leakage test, the pressure-retaining boundary is defined in IWB-5222. The system leakage test shall include a VT-2 examination in accordance with IWA-5240. The system leakage test will be conducted at a pressure not less than that corresponding to 100% rated reactor power. The system hydrostatic test (described below), when performed, is acceptable in lieu of the system leakage test.

Hydrostatic Pressure Tests

A system hydrostatic test may be performed in lieu of a system leakage test, and when required for repairs, replacements, and modifications per IWA-4540. The test shall include all Class ~~2~~ 3 pressure retaining components and piping within the boundaries defined by IWB-5230 or the boundary of a repair or replacement as applicable. The system hydrostatic test shall include a VT-2 examination in accordance with IWA-5240. For the purposes of determining the test pressure for the system hydrostatic test in accordance with IWB-5230, the nominal operating pressure shall be the maximum operating pressure indicated in the Process Flow Diagram (PFD) for the Nuclear Boiler System.

5.2.4.7 Code Exemptions

As provided in ASME Section XI, IWB-1220, certain portions of Class 1 systems are exempt from the volumetric and surface examination requirements of IWB-2500. Complete list will be provided in the plant-specific preservice inspection and inservice inspection program submitted by the Combined License applicant.

5.2.4.8 Code Cases

As applicable, the provisions of the Code Cases listed in Table 5.2-1 may be used for preservice and inservice inspections, evaluations, and repair and replacement activities.

5.2.5 Reactor Coolant Pressure Boundary (RCPB) Leakage Detection

As discussed in SRP 5.2.5, the Reactor Coolant Pressure Boundary (RCPB) leakage detection systems are designed to provide a means of detecting and, to the extent practical, identifying the source of the reactor coolant leakage. The system is designed to perform the detection and monitoring function to assure conformance with the