

Enclosure 1

M170054

GEH Revised Response to RAI 14.03-1

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Update to RAI 14.03-1

GEH is revising the response to NRC Request for Additional Information (RAI) 14.03-1 to ensure that the definition for “ASME Code” reflects the content of Tier 1 and to address recent changes in 10 CFR 50.55a, in which the paragraph numbers were changed. These changes were discussed with the NRC in a public teleconference held on February 23, 2017.

GEH Revised Response to RAI 14.03-1

GEH proposes to revise the ASME definition as follows:

Tier 1 Section 1.1

ASME Code means Section III of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, **unless specifically stated otherwise**. Some Tier 1 ~~ITAAC design commitments content~~ in the ABWR DCD ~~specify~~ specifies that structures, systems, and components be designed and constructed in accordance with ASME Code Section III requirements. When this language is used, it indicates that the ITAAC ~~for that design commitment related to that content~~ will be met by satisfying the edition and addenda of the ASME Boiler and Pressure Vessel Code, Section III as specified in the DCD and as incorporated by reference in 10 CFR 50.55a subject to the conditions listed in 10 CFR 50.55a~~(b)~~, or in accordance with alternatives ~~to paragraphs (b), (c), (d), or (e) of 10 CFR 50.55a as~~ authorized by the NRC pursuant to 10 CFR 50.55a~~(a)(3)~~.

In addition, GEH proposes to clarify an additional Tier 1 subsection to add the ASME section identification.

Section 2.1.1:

The following ASME **Section II** materials (or their equivalents) are used in the RPV pressure boundary: SA-533, Type B, Class 1 (plate); SA-508, Class 3 (forging); SA-508, Class 1 (forging); SB-166 (UNS N06600, bar); SB-167 (UNS N06600, seamless pipe); SB-564 (UNS N06600, forging); SA-182 or SA-336, Grade/Class F316L (maximum carbon 0.020%, forging) or F316 (maximum carbon 0.020% and nitrogen from 0.060 to 0.120%, forging); and SA-540, Grade B23 or B24 (bolting).

Impact on DCD

GEH ABWR DCD, Tier 1, Section 1.1, “Definitions,” and subsection 2.2.1 will be modified as shown on the attached markup (Enclosure 2).

The following is the original response:

NRC Request for Additional Information 14.03-1:

In finalizing the ESBWR design certification, GEH made two revisions to enhance the clarity of ASME Code requirements in the ITAAC. These revisions may be applicable to the ABWR DCD and are discussed below.

The first revision addressed a potential misconception that NRC-approved alternatives to the Code might be viewed as unacceptable for ITAAC closure. Specifically, the definition of "ASME Code requirements" in Tier 1 initially did not include NRC-approved alternatives. Therefore, verbatim adherence to the ITAAC might have been viewed to only permit ASME Code requirements and not include alternatives to the Code pursuant to 10 CFR 50.55a(a)(3). The second revision improved the clarity of the requirement for ASME Code component design verification. Specifically, the initial ITAAC could have been viewed as requiring design verification of as-designed ASME Code components, rather than as-built ASME Code components. Verifying interim ASME Code design reports at the design stage would result in an unnecessary regulatory burden with no benefit to safety. Instead, the ITAAC was revised to clarify that the activities to satisfy the ITAAC should be performed at the as-built stage, and should involve a design verification and as-built reconciliation using ASME Code design reports.

Further discussion of these issues may be found in NUREG-1966, Supplement 1(ML14265A084) Sections 14.3 and 14.3.3.

Please consider whether it would be appropriate to make these revisions to the Tier 1 content of the ABWR DCD. If you decide that these revisions are appropriate, please identify the Tier 1 material that is being revised and include the proposed revisions. If you decide that the revisions described above are not appropriate, please provide your reasons for this determination.

GEH Response to RAI 14.03-1:

GEH has reviewed the revisions to the ESBWR Design Certification and the wording used in the ABWR Design Certification and agrees to add a clarification that it would be acceptable to allow NRC-approved code alternatives pursuant to 10 CFR 50.55a(a)(3) as acceptable for ITAAC closure.

The wording for most ABWR ITAACs does not require review of design stage documentation but instead relies on the testing performed in the post construction testing to ensure ASME components retain their pressure integrity under design conditions. An example is the Reactor Recirculation System which requires:

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
The ASME components of the RRS retain their pressure integrity under internal pressures that will be experienced during service.	A hydrostatic test will be conducted on those Code components of the RRS required to be hydrostatically tested by the ASME Code.	The results of the hydrostatic test of the ASME components of the RRS conform with the requirements in the ASME Code, Section III.

In two cases (Reactor Pressure Vessel and the Containment Vessel) there is a requirement to verify system design but in these cases, the document to be reviewed is clearly stated i.e.:

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
The RPV pressure boundary defined in Section 2.1.1 is designed to meet the ASME Code Class 1 vessel requirements.	Inspections of the ASME Code required documents will be conducted.	An ASME Code Certified Stress Report exists for the RPV pressure boundary components.
The primary containment pressure boundary defined in Section 2.14.1 is designed to meet ASME Code, Section III requirements.	Inspections of ASME Code required documents will be conducted.	An ASME Code Certified Stress Report exists for the pressure boundary components.

Based on this, GEH believes that no additional changes are required.

Impact on DCD

GEH ABWR DCD, Tier 1, Section 1.1, "Definitions," will be revised as shown on the attached markup (Enclosure 2). Specifically, a definition for "ASME Code" will be added.