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MFN 08-086, Supplement 60

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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. 174 Related to ESBWR Design Certification Application ESBWR RAI Number 14.3-259, Supplement 1**

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 174 and dated April 23, 2008 (Reference 1).

Enclosure 1 contains the GEH response to RAI Number 14.3-259, Supplement 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 08-435, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, GEH, *Request For Additional Information Letter No. 174 Related To ESBWR Design Certification Application*, dated April 23, 2008

Enclosure:

1. Response to Portion of NRC Request for Additional Information Letter No. 174 Related to ESBWR Design Certification Application DCD Tier 1 RAI Number 14.3-259, S01

cc:

AE Cubbage	USNRC (with enclosure)
GB Stramback	GEH/San Jose (with enclosure)
RE Brown	GEH/Wilmington (with enclosure)
DH Hinds	GEH/Wilmington (with enclosure)
eDRF	0000-0080-4802

MFN 08-086, Supplement 60

Enclosure 1

Response to Portion of NRC Request for Additional Information Letter No. 174 Related to ESBWR Design Certification Application

DCD Tier 1

RAI Number 14.3-259, Supplement 1

RAI 14.3-259, Supplement 01

NRC Summary:
RPS Figure configuration drawing

NRC Full Text:
In response to RAI 14.3-259, GEH stated that the basic configuration drawing (Figure 2.2.7-1) for RPS in ESBWR DCD Revision 3 contained details that were not appropriate for the ESBWR Tier 1 document. The staff does not understand what is meant by "not appropriate for ESBWR Tier 1 document." NUREG-0800, Section 14.3, states, "Figures should be provided for most systems, with the amount of information depicted based on the safety significance of the SSCs. Where figures are not required, generally for simple non-safety significant systems, the narrative should be sufficient to describe the system. The figures are intended to depict the functional arrangement of the significant SSCs of the standard design." The RPS is not a simple non-safety significant system. Additionally, the narrative, in this case from Tables 2.2.7-1, 2.2.7-2 and 2.2.7-3, does not depict the information that was provided in Figure 2.2.7-1.

The RPS design will be completed during the DAC process. SECY-92-053, Use of DAC during 10 CFR Part 52 Design Certification Reviews, states "The DAC, and any related interface requirements, need to be sufficient for the staff to conclude that any additional design detail developed after the design certification, which satisfies those criteria, would not alter the staff's safety conclusion." SECY-92-053 goes on to state, "The second part of the review (of DAC/ITAAC) will address the implementation of digital control systems to meet the functional system requirements. This will rely upon a formal process with phased ITAAC for design development." The applicant is requested to identify what information is not appropriate from Figure 2.2.7-1 and identify the life cycle activity and the output documents during the DAC process that will provide this information. This information can be extracted from the current description of the ESBWR Lifecycle Process presented by the SMP and SQAP.

GEH Response

GEH prepared a process for determining what content to include in Tier 1 and described this process in Tier 2, Section 14.3. In Revision 4 of Tier 1, GEH performed a review of information contained in Revision 3 of Tier 1 and determined that some information was presented which would be subject to change. GEH revised Tier 1 in Revision 4 to be consistent with then draft NRC guidance and focused the content of the Design Descriptions and ITAAC on that set of information generally consistent with the NRC guidance. GEH placed a high priority on assuring that information in Tier 1 is not subject to change, based

on the guidance now in NUREG-0800, Section 14.3, discussing the content of Tier 1:

> *The significance of designating design information, as either Tier 1 or Tier 2 is that different change processes and criteria apply to each tier, as described in the evolutionary design certification rules. Basically, Tier 1 information is difficult to change after the design certification rule is issued because changes require a finding by the NRC that the change is needed to assure adequate protection of the public health and safety. This results in a very high threshold for change to Tier 1 by either the NRC or others once the rule is issued. Whereas, Tier 2 information can be changed by a combined license (COL) applicant or licensee under a "50.59-like" process, provided the change does not impact Tier 1.*

Each figure was reviewed to determine if it was subject to change and, in most cases, the figure was simplified or was removed from Tier 1. For most of the instruction and controls sections of Tier 1, the figures that are contained in Tier 2 are not included in Tier 1. The reason is that the instrumentation and controls systems are the subject of DAC, as reflected in the RAI, and the design will be completed and verified through the DAC ITAAC closure process. The phased life-cycle approach for closure of DAC is explained in Tier 2, Section 14.3A, and in the SMP and SQAP Licensing Topical Reports. Figure 2.2.7-1 is no longer included in Tier 1, but is contained in Tier 2 as Figure 7.2-1, "Reactor Protection System Block Diagram." The completion of DAC for the Reactor Protection System will incorporate the elements described in Tier 1 along with the more detailed supporting information in Tier 2.

The discussion in the RAI regarding the referenced SECY papers is largely related to the content in Tier 2 or associated Licensing Topical Reports, rather than the content that would be in Tier 1. Regarding the level of detail in ITAAC for digital instrumentation and control, SECY 92-053 states the following:

> *Because design detail is not available in this review area, and several design implementation methods would be acceptable to the staff,* ***the ITAAC requirements and acceptance criteria in the design certification will be general in nature****. The applicants and the NRC will establish agreed upon review points in the design development process to verify that the implementation is proceeding in accordance with the design certification.*

Recognizing that the design detail for DAC ITAAC will change when the design is completed, GEH deemed it inappropriate to include a significant level of detail in the instrumentation and controls section of Tier 1. Instead, the focus of Tier 1 for DAC ITAAC is establishing a phased process for DAC completion. Because GEH is continuing to interact with the NRC on completing the DAC ITAAC, but at this time, GEH has determined that detailed information, such as that which was

included on Tier 1, Revision 3, Figure 2.2.7-1, is not appropriate for Tier 1 content and rulemaking, based on NRC guidance in NUREG-0800, Section 14.3, regarding the items that are subject to change.

DCD Impact

Based on the discussion above, no change to the DCD will be made as a result of this response.