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MFN 06-173 S01

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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. 25 Related to ESBWR Design Certification Application,
Event Acceptance Criteria, RAI 15.0-12 S01**

Enclosure 1 contains GEH's response to Supplement 1 to the original NRC RAI transmitted via the Reference 1 letter.

If you have any questions or require additional information regarding the information provided here, please contact me.

Sincerely,



James C. Kinsey
Project Manager, ESBWR Licensing

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NKO

Reference:

1. MFN 06-142, Letter from U.S. Nuclear Regulatory Commission to David Hinds, *Request for Additional Information Letter No. 25 Related to ESBWR Design Certification Application*, May 9, 2006.

Enclosure:

1. MFN 06-173 Supplement 1, Response to a Portion of NRC Request for Additional Information Letter No. 25, Related to ESBWR Design Certification Application, Event Acceptance Criteria, RAI Number 15.0-12 S01.

cc: AE Cabbage USNRC (with enclosures)
DH Hinds GEH (with enclosures)
RE Brown GEH (w/o enclosures)
eDRF 0000-0069-8929

ENCLOSURE 1

MFN 06-173 Supplement 1

**Response to a Portion of NRC Request for,
Additional Information Letter No. 25,
Related to ESBWR Design Certification Application,
Event Acceptance Criteria
RAI Number 15.0-12 S01**

RAI 15.0-12: Basis for acceptance criteria

DCD Tier 2, Sections 15.0.3, "Determination of Safety Analysis Acceptance Criteria," and 15.0.3.4, "Special Events":

Delete reference to the ABWR FSER as the basis for acceptance criteria.

Response:

GE proposes to change the last sentence of the 1st paragraph of Subsection 15.0.3 to read as follows:

"Where an acceptance criterion is not specified in regulations and the SRP, then the criterion in the Reference 1 LTR shall be used."

GE proposes to delete the 6th paragraph of Subsection 15.0.3.1.

Subsection 15.0.3.4 does not specifically address the ABWR FSER, however, a paragraph in Subsection 15.0.3.4.7 does address the ABWR FSER. GE proposes to delete this paragraph.

Tier 2 Section 15.0 will be revised in the next update as noted above and in the attached markup.

NRC RAI 15.0-12 S01

NRC Staff Supplemental Request for Information on GE's Partial Response to ESBWR RAI 15.0-12 (MFN 06-173)

In the Rev.3 of DCD 15.0-3 it is stated "Where an acceptance criterion is not specified in regulations and the SRP, then the criterion in the reference 1 LTR shall be used." The LTR NEDO-33175, Rev.1 has not been approved by the staff. Revise the DCD to reference only the regulations and the SRP. Any departures from the SRP should be justified in the DCD rather than referring to NEDO-33175.

Response to RAI 15.0-12 S01

Tier 2 Subsections 15.0.1, 15.0.3, 15.0.3.4.7 and 15.0.6 will be modified to delete all references to NEDO-33175. Subsection 15.0.3.4.7 will be simplified to just address the applicable criterion from BTP 11-5 (consistent with Subsection 11.3.7). This, in turn, results in changes to Table 15.0-7, with respect to the Waste Gas System Leak or Failure.

DCD Impact:

Tier 2 Section 15.0 will be modified as shown on the following pages.

15.0.1 Classification and Selection of Events

The classification of events for the ESBWR is primarily based on the classifications and terms used in the 10 CFR regulations because:

- The 10 CFR regulations have authority over all other document types;
- The SRP and Regulatory Guide (RG) 1.70 do not provide specific definitions for all versions of abnormal event categories;
- The SRP and RG 1.70 do not use the same terminology for the non-accident abnormal events, and thus, the non-accident abnormal event classifications within the SRP and RG 1.70 could be misinterpreted;
- The non-accident abnormal event classification terms in the SRP and RG 1.70 are not the same as the abnormal event classifications in the 10 CFR regulations;
- The 10 CFR regulations do specifically define an Anticipated Operational Occurrence (AOO), Loss-of-Coolant Accident (LOCA), Anticipated Transient Without Scram (ATWS), normal operation, design basis events, and a number of associated terms; and
- The use of terms is more consistent within the 10 CFR regulations than in the SRP or RG 1.70.

15.0.3 Determination of Safety Analysis Acceptance Criteria

Where acceptance criteria are specified in the 10 CFR regulations, those criteria or their equivalent SRP criteria shall be used. However, if an acceptance criterion in the SRP conflicts with the associated acceptance criterion in a regulation, then the criterion specified in the regulation is used. Where an acceptance criterion is not specified in the 10 CFR regulations, then the criterion in the SRP is used. Where an acceptance criterion is not specified in regulations nor the SRP, then the criterion is developed primarily based on a review of the regulations, and secondarily based on reviews of regulatory guide(s) and the SRP.

15.0.3.4.7 Waste Gas System Leak or Failure

Because the ESBWR Offgas System pressure boundary is designed to withstand dynamic overpressure from potential hydrogen detonation of at least 17 times the normal system operating pressure, a structural failure in the Offgas System is not a credible event. For the ESBWR, the only plausible event scenario that could result in a waste gas release requires two independent operator errors and an instrumentation isolation trip or (mechanical) isolation function failure to occur, and would result in only the release of noble gases. The postulation of a Waste Gas System Failure for the ESBWR goes beyond the 10 CFR 50 Appendix A single failure criterion, and thus, it does not qualify as a design basis event. This conclusion is consistent with SRP 15.7.1, which no longer requires this event to be analyzed within Chapter 15. Therefore, the Waste Gas System Failure for the ESBWR is classified as a special event.

The radiological analysis acceptance criterion for the Waste Gas System Failure comes from Branch Technical Position (BTP) 11-5 from NUREG-0800. As is directly applicable to the ESBWR, BTP 11-5 states "the dose criterion in every case should not exceed 25 mSv (2.5 rem) at the exclusion area boundary."

15.0.6 References

15.0-1 (Deleted)

Table 15.0-7

ESBWR Event Classifications and Radiological Acceptance Criteria

Event*	Accident Class**		Radiological Acceptance Criteria***					
	Infrequent Event	Accident	10 CFR 20, App. B, Table 2, Column 2	10 CFR 20.1301	GDC 19, 5 rem TEDE	2.5 rem TEDE	6.3 rem TEDE	25 rem TEDE
Waste Gas System Leak or Failure ++					+	X		

*** Based on the 10 CFR regulations, SRP 15 and BTP 11-5.