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MFN 07-451

Docket No. 52-010

August 15, 2007

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555-0001

Subject: **Response to Portion of NRC Request for Additional Information
Letter No. 100 Related to ESBWR Design Certification Application,
Consequence of An Infrequent Event, RAI 15.0-26**

Enclosure 1 contains GEH's response to the subject 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,

Handwritten signature in cursive script that reads "Kathy Sedney for".

James C. Kinsey
Project Manager, ESBWR Licensing

D068
NRD

Reference:

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

Enclosure:

1. MFN 07-451, Response to a Portion of NRC Request for Additional Information Letter No. 100, Related to ESBWR Design Certification Application, Consequence of An Infrequent Event, RAI Number 15.0-26

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

ENCLOSURE 1

MFN 07-451

**Response to a Portion of NRC Request for,
Additional Information Letter No. 100,
Related to ESBWR Design Certification Application,
Consequence of An Infrequent Event,
RAI Number 15.0-26**

NRC RAI 15.0-26

In DCD Tier 2, Rev 3, Section 15.0.1.2 (3), "An infrequent event is defined as a DBE (with or without assuming a single active component failure or single operator error) with probability of occurrence of $< 1/100$ per year, and a radiological consequence less than an accident."

According to regulations, there are only two event categories: anticipated operational occurrences (AOOs) and Accidents. The staff believes that the infrequent event (IE) category is a subset of the accident category, and hence the radiological consequence is less than of a design basis accident. Hence revise the following from "-----radiological consequence less than an accident" to "--radiological consequence less than a design basis accident."

Response to RAI 15.0-26

GE agrees with staff statement that "*the infrequent event (IE) category is a subset of the accident category, and hence the radiological consequence is less than of a design basis accident,*" and will change Tier 2 Subsection 15.0.1.2 as requested in the RAI.

DCD Impact:

Tier 2 Subsection 15.0.1.2 will be modified as shown on the following page.

15.0.1.2 Results of Event Classification Determinations

Table 15.0-1 provides the results of the event classifications in the form of a determination criterion vs. event classification matrix. Table 15.0-1 is based on the results from the following evaluation.

- (1) a. Per 10 CFR 50.49, and the fact that the SRP treats all postulated abnormal initiating events with or without assuming a single active component failure or single operator error as if they are all design basis events, the following are classified as design basis events:
 - Normal operation, including AOOs;
 - Infrequent events [see Item (3) for additional details];
 - Accidents;
 - External events; and
 - Natural phenomena.
- b. AOOs, by definition, are classified as part of normal operations, do not have radiological consequences (except if in combination with an additional single active component failure or single operator error), have more restrictive acceptance criteria (e.g., GDC 10 or 10 CFR 20 vs. 10 CFR 50.34) than accidents, and thus, are not accidents and shall not be treated as accidents.
- c. A classification term for events with lower probabilities than AOOs, but for conservatism should be not treated as accidents should be provided.
- d. Except for AOOs, the 10 CFR regulations, SRP and RG 1.70 do not explicitly or implicitly apply any quantitative event frequency criterion for defining any other abnormal event classification. Therefore, event frequencies should not be used to determine accident type event classifications.

SRP 6.1.1, SRP 15.0.1 and RG 1.183 are consistent in categorization of DBAs. A DBA is an accident postulated and analyzed to confirm the adequacy of a plant engineered safety feature.

By exclusion, all other accidents are not classified as DBAs.

- (2) An AOO is any abnormal event that has an event probability of $\geq 1/100$ per year.
- (3) The other (non-AOO and non-DBA) postulated abnormal events are classified as "infrequent events." An infrequent event is defined as a DBE (with or without assuming a single active component failure or single operator error) with probability of occurrence of $< 1/100$ per year, and a radiological consequence less than a design basis accident.
- (4) The other (non-AOO and non-infrequent incident) DBEs should be classified as accidents with DBAs as a subset. An accident is defined as a postulated DBE that is not expected to occur during the lifetime of a plant, which equates to either an ASME Code Service Level C or D incident, and results in radioactive material releases with calculated doses comparable to (but not to exceed) the 10 CFR 50.34(a) exposures.