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MFN 06-519
Supplement 1

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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. 67 Related to ESBWR Design Certification Application – Mechanical Systems and Components – RAI Number 3.9-103 S01**

Enclosure 1 contains GE's response to the subject NRC RAI transmitted via e-mail on February 15, 2007. GE's original response was provided in the Reference 1 letter.

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

Sincerely,

Kathy Sedney for

James C. Kinsey
Project Manager, ESBWR Licensing

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Reference:

1. MFN 06-519, Letter from James C. Kinsey to U.S. Nuclear Regulatory Commission, *Response to Portion of NRC Request for Additional Information Letter No. 67 Related to ESBWR Design Certification Application – Mechanical Systems and Components – RAI Numbers 3.9-103, 3.9-109, 3.9-164 and 3.9-173,* December 15, 2006

Enclosure:

1. MFN 06-519, Supplement 1 – Response to Portion of NRC Request for Additional Information Letter No. 67 Related to ESBWR Design Certification Application – Mechanical Systems and Components – RAI Number 3.9-103 S01

cc:

AE Cubbage	USNRC (with enclosures)
DH Hinds	GE (with enclosures)
RE Brown	GE (w/o enclosures)
eDRF	0000-0066-9631

Enclosure 1

MFN 06-519

Supplement 1

Response to Portion of NRC Request for

Additional Information Letter No. 67

Related to ESBWR Design Certification Application

Mechanical Systems and Components

RAI Number 3.9-103 S01

NRC RAI 3.9-103

In DCD Tier 2, Section 3.9.3, provide a table similar to Table 3.9-9 showing the load combinations and acceptance criteria for safety related active valves and pressure relief devices. Provide confirmation that safety related components and component supports required to remain operational and to perform a safety function after a specified plant condition event are designed to lower ASME Section III service level stress criteria.

GE Response

Information similar to Table 3.9-9 can be found in DCD Tier 2 Table 3.9-2 for safety related active valves and pressure relief devices. Table 3.9-2, which is titled "Load Combinations and Acceptance Criteria for Safety-Related, ASME Code Class 1, 2 and 3 Components, Component Supports, and Class CS Structures", contains the load combination and ASME Service Level information that are used in the design of the pertinent equipment. Table 3.9-2 provides a correlation of plant conditions and load combinations to service levels for the appropriate design limits defined in the ASME Code Section III. It is confirmed that safety related components and component supports required to remain operational and to perform a safety function after a specified plant condition event are designed to the appropriate ASME Code Section III service level stress criteria.

DCD Impact

No DCD changes will be made in response to this RAI.

NRC RAI 3.9-103 S01

This RAI requested that GE "Provide confirmation that safety related components and component supports required to remain operational and to perform a safety function after a specified plant condition event are designed to lower ASME Section III service level stress criteria."

The GE response stated that "It is confirmed that safety related components and component supports required to remain operational and to perform a safety function after a specified plant condition event are designed to the appropriate ASME Code Section III service level stress criteria." It isn't clear what GE means by "appropriate" and the basis for deciding what's appropriate was not stated. We request that you tell us that the appropriate stress criteria for these components and supports are indeed lower than those corresponding to the plant event.

As an example, a valve that is required to be active during and after an SSE or other faulted condition event should be designed to Service Level C or Service level B criteria. The allowable stresses for these service levels are smaller than the Service Level D allowable stress; a valve that is not required to operate during and after a faulted event would be designed to the Service Level D allowable stress. If this has been addressed somewhere else, please provide a reference to the particular section.

GE Response

GE confirms that the stress criteria that are appropriate for active components and their supports that experience a design basis event are lower than the stress criteria allowed by the corresponding ASME Code Service Condition to which the event is classified.

GE's approach, as outlined in the DCD, is that the Code stated allowable stress limit for a service condition classification is bounding only for component structural integrity. GE uses analysis, test, or a combination of analysis and testing to confirm that an active component will not incur damage that inhibits a safety-related function due to the loads imposed for a specified service condition. This is inclusive of those components and their supports expected to be able to perform active safety functions during or after experiencing service level D loads. Allowance is also made for material condition affects such as, material specification variations, process chemistry, aging, corrosion and fatigue. Consequent to this design strategy is that the component and support stresses are limited to values that ensure, with margin for the material limitations and for the analysis method, that the safety function can be performed under the design load. These lesser stress limits imposed as a result of the design strategy outlined in the DCD are what was meant in the previous response as the "appropriate" limits.

DCD Impact

No DCD changes will be made in response to this RAI.