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Subject: **Response to Portion of NRC Request for Additional Information Letter No. 65 Related to ESBWR Design Certification Application – Classification of Non-Safety SSCs – RAI Number 3.2-65**

Enclosure 1 contains GE's response to the subject NRC RAI transmitted via the Reference 1 letter.

If you have any questions about the information provided here, please let me know.

Sincerely,

Kathy Sedney for

David H. Hinds
Manager, ESBWR

D068

Reference:

1. MFN 06-353, Letter from U.S. Nuclear Regulatory Commission to David Hinds, *Request for Additional Information Letter No. 65 Related to ESBWR Design Certification Application,* September 26, 2006

Enclosure:

1. MFN 06-458 – Response to Portion of NRC Request for Additional Information Letter No. 65 Related to ESBWR Design Certification Application – Classification of Non-Safety SSCs – RAI Number 3.2-65

cc: AE Cubbage USNRC (with enclosures)
GB Stramback GE/San Jose (with enclosures)
eDRFs 0000-0060-7081

ENCLOSURE 1

MFN 06-458

Response to Portion of NRC Request for

Additional Information Letter No. 65

Related to ESBWR Design Certification Application

Classification of Non-Safety SSCs

RAI Number 3.2-65

NRC RAI 3.2-65

What is the analyzed basis for arriving at a 10-hour margin in qualified life for the environmental quality components when it is required to perform its function during and after the accident? Recognize that the accident environment, classified as harsh environment due to temperature, pressure or radiation, etc., cannot be converted to a mild environment in a period of 10 hours. The precedence had been to qualify the equipment for 90 days or more to provide sufficient time to develop back up provisions as necessary to protect the health and safety of the public following a design basis accident.

GE Response

It is assumed that this RAI is referring to the Environmental Qualification Operating Time (EQOT) or required time of operation of specific equipment as discussed in Subsection 3.11.2.1 of the DCD.

GE agrees that a harsh environment cannot be converted to a mild environment within a period of 10 hours. However, components such as the control rod drives complete their function in a matter of seconds and have no further task to perform during the event. Consequently, they do not need to be designed to remain functional in a harsh environment for beyond 10 hours.

An EQOT of 10 hours is only assigned to equipment that will have completed its safety-related function within 10 hours after an accident and has no further safety-related actions to perform after that point in time. As stated in Subsection 3.11.2.1,

> Some mechanical and electrical equipment may be required to perform an intended function between minutes of the occurrence of the event but less than 10 hours into the event. Such equipment shall be shown to remain functional in the accident environment for period of at least 1-hour in excess of the time assumed in the accident analysis unless a time margin of less than one hour can be justified. Such justification shall include for each piece of equipment:
>
> (1) consideration of a spectrum of breaks;
> (2) the potential need for the equipment later in the event or during recovery operations;
> (3) a determination that failure of the equipment after performance of its safety function is not detrimental to plant safety or does not mislead the operator; and
> (4) determination that the margin applied to the minimum operability time, when combined with other test margins, accounts for the uncertainties associated with the use of analytical techniques in the derivation of environmental parameters, the number of units tested, production tolerances, and test equipment inaccuracies.
>
> For equipment with required time of operation during accident of more than 10 hours, it shall be demonstrated that they remain functional under accident

conditions for a period of time at least 10% longer than the required time of operation.

The practice described above for establishing environmental qualification requirements for safety-related components is similar to what has been applied to all previous BWR designs. Equipment that has long-term operational requirements is typically qualified to remain functional for 100 days (90 days plus 10% margin).

No DCD changes are required for this RAI.