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Subject: **Response to Portion of NRC Request for Additional Information Letter No. 370 Related to ESBWR Design Certification Application - Quality Assurance - RAI Number 17.4-23 S03, Incorporation of Final Wording to Tier 1, Section 3.6, Design Reliability Assurance Program (D-RAP)**

Enclosure 1 contains ESBWR Design Control Document (DCD) markups incorporating final wording provided by the NRC to Tier 1, Section 3.6, Design Reliability Assurance program (D-RAP). Associated changes are enclosed within boxes on the markup pages. These changes supercede those previously submitted in Reference 1.

If you have any questions about the information provided, please contact me.

Sincerely,

FOR

Richard E. Kingston
Vice President, ESBWR Licensing

Reference:

1. MFN 09-620, Response to Portion of NRC Request for Additional Information Letter No. 370 Related to ESBWR Design Certification Application - Quality Assurance - RAI Number 17.4-23 S03, dated October 9, 2009

Enclosure:

1. Response to Portion of NRC Request for Additional Information Letter No. 370 Related to ESBWR Design Certification Application - Quality Assurance - RAI Number 17.4-23 S03, Incorporation of Final Wording to Tier 1, Section 3.6, Design Reliability Assurance Program (D-RAP) - ESBWR DCD Markups

cc:

AE Cubbage	USNRC (with enclosures)
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Enclosure 1

MFN 09-620, Supplement 1

Response to Portion of NRC Request for Additional Information Letter No. 370 Related to ESBWR Design Certification Application - Quality Assurance –

RAI Number 17.4-23 S03

Incorporation of Final Wording to Tier 1, Section 3.6, Design Reliability Assurance Program (D-RAP)

ESBWR DCD Markups

3.6 DESIGN RELIABILITY ASSURANCE PROGRAM

Design Description

The GEH ESBWR Design Reliability Assurance Program (D-RAP) is used during detailed design and specific equipment selection phases to assure that the important ESBWR reliability assumptions of the probabilistic risk assessment (PRA) will be considered throughout the plant life. The PRA is used to evaluate plant responses to abnormal event initiations and the corresponding plant mitigation functions, to ensure potential plant damage scenarios pose a very low probability of risk to the public.

The objectives of the D-RAP are to provide reasonable assurance that ~~risk-significant~~ SSCs in the scope of the D-RAP are designed such that: (1) Assumptions from the risk analysis are utilized; (2) SSCs when challenged, function in accordance with the assumed reliability; (3) SSCs whose failure results in a reactor trip, function in accordance with the assumed reliability; and (4) Maintenance actions to achieve the assumed reliability are identified.

The scope of the ESBWR D-RAP includes risk-significant SSCs, both safety-related and nonsafety-related, that provide defense-in-depth or result in significant improvement in the PRA evaluations, and all SSCs designated as RTNSS.

(1) Ensure that the design of systems, structures, and components within the scope of the reliability assurance program (RAP SSCs) is consistent with the risk insights and key assumptions (e.g., SSC design, reliability, and availability). ~~The D-RAP provides reasonable assurance that the ESBWR plant is designed and constructed in a manner that is consistent with the key assumptions (including reliability and availability assumptions in the PRA, when applicable) and the risk insights for the risk-significant SSCs in the D-RAP.~~

Inspections, Tests, Analyses, and Acceptance Criteria

Table 3.6-1 specifies the inspections, tests, analyses, and associated acceptance criteria for the D-RAP.

Table 3.6-1

ITAAC For The Design Reliability Assurance Program

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1. Ensure that the design of systems, structures, and components within the scope of the reliability assurance program (RAP SSCs) is consistent with the risk insights and key assumptions (e.g., SSC design, reliability, and availability). The D-RAP provides reasonable assurance that the ESBWR plant is designed and constructed in a manner that is consistent with the key assumptions (including reliability and availability assumptions in the PRA, when applicable) and the risk insights for the risk-significant SSCs in the D-RAP.	An analysis will confirm that the design of all RAP SSCs has been completed in accordance with applicable D-RAP activities. An inspection will be performed to verify that a report exists, which includes: □ Identification of site-specific risk-significant SSCs; □ The evaluation methodology; and □ A description of the aspects of reliability assurance activities that were accomplished prior to initial fuel load (i.e., procurement, fabrication, construction or preoperational testing phase) for the risk-significant SSCs in the D-RAP, which provides reasonable assurance that the ESBWR plant is designed and constructed in a manner that is consistent with the key assumptions (including reliability and availability in the PRA, when applicable) and risk insights for the risk-significant SSCs in the D-RAP.	All RAP SSCs have been designed in accordance with the applicable reliability assurance activities for the D-RAP. A report exists that includes the following: □ Identification of site-specific risk-significant SSCs; □ The evaluation methodology; and • A description of the aspects of reliability assurance activities that were accomplished prior to initial fuel load (i.e., procurement, fabrication, construction or preoperational testing phase) for the risk-significant SSCs in the D-RAP, which provides reasonable assurance that the ESBWR plant is designed and constructed in a manner that is consistent with the key assumptions (including reliability and availability in the PRA, when applicable) and risk insights for the risk-significant SSCs in the D-RAP.