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Sent:	Thursday, April 10, 2008 4:20 PM
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Cc:	'Pederson Ronda M (AREVA NP INC)'; Joseph Colaccino; John Rycyna; Theresa Clark; Hanh Phan; Lynn Mrowca; Hossein Hamzehee; Edward Fuller
Subject:	U.S. EPR Design Certification Application RAI No. 4
Attachments:	RAI 4 SPLA 153.doc

Attached please find the subject request for additional information (RAI). This RAI was discussed with your staff on April 3, 2008. The schedule we have established for review of your application assumes technically correct and complete responses within 30 days of receipt of RAIs. For any RAIs that cannot be answered within 30 days, it is expected that a date for receipt of this information will be provided to the staff within the 30 day period so that the staff can assess how this information will impact the published schedule.

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Subject: U.S. EPR Design Certification Application RAI No. 4
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Options
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Request for Additional Information No. 4 Revision 0
4/10/2008
U. S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP Section: 19 - Probabilistic Risk Assessment and Severe Accident Evaluation
Application Section: 19.1.5
SPLA Branch

QUESTIONS

19-49

In accordance with guidance provided in SRP Section 19.1.3.4, please explicitly describe the uses of the EPR internal flooding PRA and insights/assumptions in the design process to reduce the weaknesses/vulnerabilities, to develop design requirements, and to improve the EPR design safety profile.

19-50

Section 19.1.5.2.1.2 indicates that, for each selected location, the flooding sources of piping, valves, pumps, tanks, and pools in the location were considered in the flooding frequency estimate. However, in the next paragraph, it was mentioned that, EPRI TR-102266 Pipe Failure Study was chosen to evaluate internal flooding frequencies. Please clarify whether the valve, pump, and tank ruptures were included in the frequency estimation. If so, describe the process and provide the references used to assign the equipment rupture frequencies.

19-51

Section 19.1.5.2.1.3 states that, "Other effects of pipe breaks, like jet impingement, spray, pipe whip, or humidity, were not specifically evaluated because all equipment at a location is considered failed." Does EPR internal flooding analysis consider the potential of electrical equipment failures in other divisions or at other locations due to water contact or pipe whip on cables/conduits/electrical cabinets?

19-52

The following findings and questions relate to the reactor building (RB) annulus flooding scenario.

a. End State 4 of RB flooding event tree (ET) should be named as FLD-ANN SB3.

b. Describe the consequences of End States 2, 3, and 4 and the contributions of these sequences to the total flooding CDF/LRF.

c. What is the initiating flooding frequency of this ET?

d. What are the elevations of the SB2 door, SB3 door, and connection boxes?

e. What are the probability values of top events "Door of SB2 Fails to Open" and "Door of SB3 Fails to Open"?

f. What is the probability of "Operator Fails to Isolate FWDS"?

g. The probability that the connection boxes to the containment would fail if submerged is estimated to be 0.5. If the state of knowledge regarding the penetration design is limited and if these boxes are not watertight, the higher failure probability of 1.0 should be assigned.

19-53

What is the probability value used to represent the operator action credited to manually isolate an emergency feedwater pipe break occurring in any of the four switchgear buildings and to initiate demineralized water system makeup to the tanks of the intact trains?

19-54

The control room does not appear to be part of the internal flooding assessment. Please provide justification for excluding the control room from the internal flood model.

19-55

Sections 19.1.5.2.2.1 and 19.1.5.2.3 provide point estimate values for internal flooding CDF and LRF respectively, please discuss the CDF and LRF in terms of mean frequencies in these sections.