Draft

Request for Additional Information No. 89 (1179, 1181), Revision 0

9/26/2008

U. S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP Section: 06.02.03 - Secondary Containment Functional Design
SRP Section: 06.04 - Control Room Habitability System
Application Section: FSAR Ch 6

QUESTIONS for Containment and Ventilation Branch 1 (AP1000/EPR Projects) (SPCV)

06.02.03-1

AVS flow

Tech. Spec. SR 3.6.6.4 states: Verify the annulus can be maintained at a pressure ≥ 0.25 inches wg by one AVS train at a flow rate of ≤ 1295 cfm.

Tech. Spec. B3.6.6 Surveillance Requirements, SR 3.6.6.3 and 3.6.6.4 state: SR 3.6.6.4 demonstrates that the annulus can be maintained at a negative pressure ≥ 0.25 inches wg using one AVS train at a flow rate ≤ 1320 cfm.

As tabulated in Tier 2 FSAR Table 6.2.3-1, the maximum AVS fan flow rate is 1177 cfm.

Which AVS train flow rate is correct: 1295 cfm, 1320 cfm, or 1177 cfm?

06.02.03-2

Condensation heat transfer correlation

Tier 2 FSAR Table 6.2.3-2, Secondary Containment Response Analysis, Notes 2 states: Heat transfer calculated by methods provided in BTP 6-2.

BTP 6-2 adopts a combination of Tagami correlation and Uchida correlation for the blowdown and post-blowdown phase heat transfer calculation.

Tier 2 FSAR Section 15.6.5.1.2, Method of Analysis and Assumptions states: As part of an EM requirement for containment modeling, the 1.7 Uchida heat transfer coefficient multiplier for application to containment heat structures is confirmed.

Which heat transfer model is used for Secondary Containment Response Analysis, 1.7 Uchida or BTP 6-2 model?

Provide a rational for its acceptability

06.02.03-3

Annulus temperature

Provide details of the thermal analysis that demonstrate the AVS will maintain acceptable annulus air temperature during accidents. Please include the key analysis assumptions, annulus in-leakage, heat loads, containment wall temperatures, and other calculation input parameters. Is heat conduction through metal penetrations considered?

06.02.03-4

Annulus pressure

Provide details of the pressure analysis that demonstrate the AVS will draw acceptable vacuum in annulus during accidents. Please include the key analysis assumptions, fan performance, annulus volume, and other calculation input parameters.

06.02.03-5

Leak-off system

Please provide a description of the leak-off system and an explanation how it will capture bypass leakage.

06.04-1

Areas of Review Section III of SRP Section 6.4, Revision 3, Review Procedure, Paragraph 3.D specifies a concern in the iodine protection factor (IPF) methodology used for transporting radioactive material into and through the control room. Per RG 1.183, Paragraph 4.2.3, the Murphy/Campe methodology may not be adequately conservative. FSAR Tier 2, Section 15.0.3.3.5, paragraph "Finite-Cloud Correction" references the Murphy/ Campe model for the LOCA. The EPR references the RADTRAD1[1] computer code, which RG 1.183 states incorporates suitable methodologies. There is insufficient information to determine if RADTRAD was used for the IPF methodology, if another model was used, or if Murphy/Campe IPF methodology was used with proper rigor as specified in SRP Section 6.4, Review Procedure, Paragraph 3.D and RG 1.183, paragraph 4.2.3. Provide information to demonstrate the IPF methodology used in the radiological dose analysis is sufficiently conservative.

1[1] RADTRAD is referenced in FSAR Tier 2, Section 15.0.3.11.2 and Tables 15.0-50 and 52, but is used for Natural Deposition Decontamination Coefficients in the primary containment leakage pathway only.

06.04-2

CR air quality testing

Tier 2 FSAR Section 6.4.5: …..Air quality testing is performed in accordance with ASRAE 62 (Reference 4). Where in the Tech. Spec. or any document the air quality testing is described or performed? Is there any application document committing to the ASHRAE testing? ASHRAE 62 is a standard to specify outdoor air flow rates, not a testing procedure. Explain which portion of ASHRAE 62 is intended to be tested and how to achieve it.

06.04-3

Maintain positive pressure of 0.125 inches during normal condition

Tier 2 FSAR Section 6.4.2.2: ……The ventilation system maintains a positive pressure of 0.125 inches water gauge as a minimum within the CRE areas with respect to adjacent environmental zones to prevent uncontrolled, unfiltered in-leakage during normal and accident conditions. Tier 2, FSAR, 9.4.1.1 has similar statement on positive pressure of 0.125 inches water gauge.

Tier 2 FSAR Section 9.4.1.2.3, Normal Plant Operation: …….Exhaust air from the kitchen and sanitary rooms is not recirculated. The exhaust air is directed by a separate exhaust duct and exhaust fans to the SBVSE air outlet.

Explain how a positive pressure of 0.125 inches is maintained within the CRE areas during normal conditions given that the exhaust air from the kitchen and sanitary rooms is not recirculated?

06.04-4

CR conceptual design

The use of conceptual design information for the control room design basis is not appropriate. Remove the conceptual design basis information from the control room description (FSAR Chapter 6.4). Interface requirements like toxic gas evaluations should be identified as specific COL information items rather than be designated as conceptual.