

ArevaEPRDCPEm Resource

From: Tesfaye, Getachew
Sent: Tuesday, March 08, 2011 2:35 PM
To: 'usepr@areva.com'
Cc: Grady, Anne-Marie; Jackson, Christopher; McKirgan, John; Carneal, Jason; Colaccino, Joseph; ArevaEPRDCPEm Resource
Subject: U.S. EPR Design Certification Application RAI No. 474 (5550), FSAR Ch. 6
Attachments: RAI_474_SPCV_5550 (2).doc

Attached please find the subject request for additional information (RAI). A draft of the RAI was provided to you on February 17, 2011, and on March 4, 2011, you informed us that the RAI is clear and no further clarification is needed. As a result, no change is made to the draft RAI. 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.

Thanks,
Getachew Tesfaye
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Hearing Identifier: AREVA_EPR_DC_RAIs
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Request for Additional Information No. 474(5550), Revision 0

3/08/2011

U. S. EPR Standard Design Certification
AREVA NP Inc.

Docket No. 52-020

SRP Section: 06.02.05 - Combustible Gas Control in Containment

Application Section: 6.2.5

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

06.02.05-25

OPEN ITEM

This is related to responses to RAI 410, Questions 06.02.05-16 through 6.2.5-19 and RAI 323.

- a. In order for a COL applicant to select a PAR design which achieves the PAR performance in a severe accident environment described in the US EPR FSAR, Tier 2, sections 6.2.5 and 19.2, provide information which will specify the experimental tests or analyses and acceptable results which will verify PAR performance, considering the impact of:
 - severe accident temperatures and pressures in containment,
 - the effect of steam or nitrogen as inert gases,
 - the effects of dome spray and direct spray on PAR start-up and performance,
 - the effects of realistic aerosol exposure generated by a molten core, including poisons such as iodine, tellurium, cesium and antimony. Show how these potential poisons affect PAR performance
- b. Coking occurs when elemental carbon in carbon bearing gases is deposited on the surface of a catalyst, blocking the reaction of the recombinants. The sources in a reactor containment severe accident are: (1) molten core/concrete interaction (MCCI) and (2) a fire, in particular the smoke and soot from electrical cable fires. Address the potential of carbon to poison the catalyst in the PARs.
- c. The PARs could be subjected to borated water in the IRWST containing trisodium phosphate, HNO₃ from the radiolysis of water, and HCl from the radiolysis of the PVC and Hypalon jackets on the electrical cables following a severe accident. Show how these chemicals could affect PAR performance.
- d. Discuss the functionality of the PARs after H₂ ignition and deflagration.
- e. Address the effects of radiation, operational vibrations, welding fumes and solvent fumes.