

ArevaEPRDCPEm Resource

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Sent: Friday, October 29, 2010 4:59 PM
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Subject: Draft - U.S. EPR Design Certification Application RAI No. 456 (5150), FSAR Ch. 19 NEW PHASE 4 RAI
Attachments: Draft RAI_456_SBPA_5150.doc

Attached please find draft RAI No. 456 regarding your application for standard design certification of the U.S. EPR. If you have any question or need clarifications regarding this RAI, please let me know as soon as possible, I will have our technical Staff available to discuss them with you.

Please also review the RAI to ensure that we have not inadvertently included proprietary information. If there are any proprietary information, please let me know within the next ten days. If I do not hear from you within the next ten days, I will assume there are none and will make the draft RAI publicly available.

Thanks,
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Request for Additional Information No. 456(5150), Revision 2

10/29/2010

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: 19.2.7

QUESTIONS for Balance of Plant Branch 1 (AP1000/EPR Projects) (SBPA)

19-342

OPEN ITEM

AIRCRAFT IMPACT ASSESSMENT

It is stated in EPR FSAR Tier 2, Section 19.2.7.3 Rev 2, that the methodology used for assessing effects of aircraft impact is described in NEI 07-13, "Methodology for Performing Aircraft Impact Assessments [AIA] for New Plant Designs," Revision 7 . Tables 3-4 and 3-5 of NEI 07-13 describe the guidelines for assessing the effects of an aircraft impact that could occur. Contrary to the requirements of paragraph (b)(1) of 10 CFR 50.150:

- EPR FSAR Sections 19.2.7.5.1 (containment), 19.2.7.5.2 (RCS heat removal), 19.2.7.5.4, (SFP Heat Removal), 19.2.7.4, and 19.2.7. 5 may not contain all the design features credited or in sufficient detail such as what systems/trains/structural features/ equipment are being credited for AIA in Technical Report ANP-10296 Sections 1 and 2 which is referenced in FSAR Section 19.2.7.4 as detailing the credited design features for AIA.
- EPR FSAR Sections 19.2.7.4 and 19.2.7. 5 do not specifically contain a description of design features nor functional capabilities nor the specific equipment relied upon to ensure that the assessment requirements in paragraph (a)(1) of 10 CFR 50.150 are met while the plant is producing power.
- EPR FSAR Sections 19.2.7.4 and 19.2.7. 5 do not specifically contain a description of design features nor functional capabilities nor the specific equipment relied upon to ensure that the assessment requirements in paragraph (a)(1) of 10 CFR 50.150 are met while the plant is shutdown and the reactor is being cooled via the shutdown cooling system.
- EPR FSAR Sections 19.2.7.4 and 19.2.7. 5 do not specifically contain a description of an assessment for the potential for damage to prevent a scram should it have not occurred is not described.

Modify FSAR Sections 19.2.7.4 and 19.2.7.5, to include a description of (1) design features and/or functional capabilities and the specific equipment including location of equipment relative to the specific design feature credited relied upon to ensure that the assessment requirements in paragraph (a)(1) of 10 CFR 50.150 are met for each item above, and (2) how these design features and/or functional capabilities and the specific equipment required meet the assessment requirements in paragraph (a)(1) of 10 CFR

50.150. In your response, please describe how these features are capable of assuring core cooling following a beyond-design-basis aircraft impact event for a sufficient period of time to allow implementation of measures that will assure long term core cooling. The staff considers 24 hours to be a sufficient amount of time to implement mitigation measures for long-term core cooling. Please provide the staff with a marked-up copy of EPR FSAR Tier 2 Sections 19.2.7.4 and 19.2.5.7.5, that shows the required descriptions and include the descriptions in the next Revision of the FSAR.

In addition, the submittal reviewed by the NRC must accurately reflect the results of the AIA performed by the applicant as required by 10 CFR 50.150. The AIA must assess the design described in the FSAR submitted for certification. The FSAR submittal should include all key design features and functional capabilities identified as needed to meet the acceptance criteria in the AIA. The applicant must either revise the FSAR submittal or revise the AIA if it is found that there are key design features and functional capabilities identified in the AIA that are not found in the EPR FSAR Section 19.2.7 currently being reviewed by the NRC.

19-343

OPEN ITEM
AIRCRAFT IMPACT ASSESSMENT

It is stated in EPR FSAR Tier 2, Section 19.2.7.5.2, that NEI 07-13 does not require postulating a Chapter 15 event concurrent with an aircraft impact that does not perforate the structures containing RCS piping. However, any Chapter 15 like events caused by an aircraft impact need to be evaluated. The applicant needs to modify FSAR Section 19.2.7.5.2 to state that no Chapter 15 like events is caused by an aircraft impact. Please provide the staff with a marked-up copy of FSAR Section 19.2.7.5.2.

19-344

OPEN ITEM
AIRCRAFT IMPACT ASSESSMENT

It is stated in EPR FSAR Tier 2, Section 19.2.7.6, that the assessment confirmed that the U.S. EPR design meets the four acceptance criteria. The applicant needs to clarify FSAR Section 19.2.7.6 to state that all areas meet all four acceptance criteria or state which areas meet which criteria. Please provide the staff with a marked-up copy of FSAR Section 19.2.7.6.

19-345

OPEN ITEM
AIRCRAFT IMPACT ASSESSMENT

The EPR AIA may take exceptions to NEI 07-13 guidance or methodology. If so, the applicant is requested to identify and provide rationale for the exceptions.

19-346

OPEN ITEM
AIRCRAFT IMPACT ASSESSMENT

It is stated in EPR FSAR Tier 2, Section 19.2.7.5, that the fire damage footprint includes effects from exterior fires that may damage areas within the air intake and exhaust ducts up to the first fire-rated doors. Fire barriers credited for the “one-barrier” option in NEI 07-13, including intervening penetration seals, doors, and dampers, should have both a 3-hour fire rating and be able to withstand 5psid overpressure to prevent fire spread. The applicant needs to revise FSAR Section 19.2.7.5 to identify and describe the specific fire barriers credited for the “one-barrier” option. Please provide the staff with a marked-up copy of FSAR Section 19.2.7.5.

19-347

OPEN ITEM
AIRCRAFT IMPACT ASSESSMENT

It is stated in EPR FSAR Tier 2, Section 19.2.7.5, that the finite element analyses indicate that interior areas of the Safeguards Buildings, Fuel Building, or the Containment Building are not susceptible to damage due to physical perforation of aircraft components into the structures. However, only Safeguards Buildings 2 and 3 have a hardened shield building as per ANP-10296. The applicant needs to clarify which safeguards buildings have a hardened shield building in FSAR Section 19.2.7.5. Please provide the staff with a marked-up copy of FSAR Section 19.2.7.5.