

ArevaEPRDCPEm Resource

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Sent: Wednesday, June 27, 2012 8:18 PM
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Subject: U.S. EPR Design Certification Application RAI No. 548 (6469), FSAR Ch. 12
Attachments: RAI_548_RPAC_6469.doc

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on May 17, 2012, and discussed with your staff on June 14, 2012. Draft RAI Questions 12.03-12.04-30 and 12.03-12.04-31 were modified as a result of that discussion. 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,
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6/27/2012

U. S. EPR Standard Design Certification

AREVA NP Inc.

Docket No. 52-020

SRP Section: 12.03-12.04 - Radiation Protection Design Features

Application Section: FSAR Section 12.3

QUESTIONS for Radiation Protection & Accident Consequences Branch (RPAC)

12.03-12.04-30

Open Item

Follow-up to RAI 221, Question 06.02.01-24

In reviewing the applicant's response to RAI 221, Question 06.02.01-24, staff has the following questions:

- a. 10 CFR 20.1602 requires that licensees institute additional measures (above those required by 10 CFR 20.1601) to ensure that an individual is not able to gain unauthorized or inadvertent access to very high radiation areas. Please verify that none of the doors listed in FSAR Table 3.6.10-1, in Chapter 16, provide access to plant areas that have the potential to become very high radiation areas during normal plant operation or anticipated operational occurrences.

In addition, in the response to Question 06.02.01-24, the applicant removed the discussion of radiation door alarms from FSAR Section 14.2.12.5.2. However, FSAR Section 12.3.1.8.1 states that design features including double locks, local and remote alarms, and video surveillance will be used to control access to very high radiation areas. Please verify that door alarms for all very high radiation doors in the containment building will remain in place to preclude unauthorized entry into very high radiation areas, as specified in FSAR Section 14.2.12.5.2.
- b. FSAR Table 6.2.1-13 indicates that Door 2 on elevation +29 of the reactor building provides access between rooms 18 and 15. However, in viewing FSAR Figure 3.8.6, there appears to be no direct connection between rooms 18 and 15 on the +29 elevation (Room 29 is between rooms 18 and 15). Please modify either FSAR Table 6.2.1-13 or Figure 3.8.6 to make this information consistent and to correct this apparent discrepancy.
- c. In the applicant's response to this staff RAI, the applicant provided a proposed FSAR revision to Table 3.6.10-1 of the FSAR, in Chapter 16. In this table the applicant stated that specific containment building radiation doors would be design tested to have an opening torque of 500 ft-lbs. In order to demonstrate adequate access control to those plant areas requiring the use of locked high radiation barriers (i.e. areas where a major portion of the body could receive in one hour a dose greater than 1000 mrem), verify that doors in containment that are required to be locked to prevent access to high radiation areas will be locked and that an individual cannot easily obtain unintended or unpermitted access to these areas.

12.03-12.04-31

Open Item

Follow-up to RAI 459, Question 12.03-12.04-25 and RAI 539, Question 12.03-12.04-29

This question is a follow up to the response to RAI 459, Question 12.03-12.04-25, Supplement 2 response and RAI 539, Question 12.03-12.04-29, Parts (b), (c), and (d). The applicant has addressed part (a) of Question 12.03-12.04-29, in the RAI 459, Question 12.03-12.04-25, Supplement 2 response.

The staff has the following questions concerning the applicant's responses to Supplement 2 of RAI 459, Question 12.03-12.04-25;

- a. NUREG-0800, Section 12.2 states that source terms should be provided assuming 0.25 percent fuel clad defects and that the source parameters should be accompanied by text that makes it clear how the values are used in a shield design calculation. NUREG-0800, Section 12.2 also states that the source terms provided in section 12.2 should be described in the manner needed for input in the shield design calculation, and therefore, be consistent with the criteria used in the Chapter 12 radiation zone maps. In addition, the normal operational source terms provided in Section 12.2 and the radiation zone maps provided in Section 12.3-12.4 are traditionally based on components filled to their maximum inventory.

In item (b) of the applicant's response, the applicant states that the source terms for the evaporator and the evaporator column have been revised to reflect expected U.S. EPR batching operations. The applicant also proposes to revise FSAR Table 12.2-16 by providing new evaporator and concentrate tank source terms.

- i. Please confirm that all of the current source terms (including the revised source terms) provided in FSAR Section 12.2 are based on a 0.25 percent failed fuel fraction, as described in FSAR Section 12.2.1.
 - ii. Also, for each room and component in FSAR Table 12.3-14, describe how the administrative dose rate limits provided relate with the associated FSAR Section 12.2 source terms. For example, for each item in Table 12.3-14 describe the specific activities that will need to be performed to limit the dose from the source terms described in Section 12.2, to the administrative limit provided in FSAR Table 12.3-14. Update FSAR Section 12.2 with this information.
- b. i "14" under item (d), the applicant states that the door between rooms UFA 16 023 (the transfer pit room) and UFA 15 096 in Figure 12.3-34 is a water-tight radiation door providing an equivalent amount of shielding as the wall between the two rooms. The applicant also states that the door is credited with fully complying with 10 CFR 20.1602 criteria for access control of very high radiation areas. However, in FSAR Section 12.3.1.8.2, there is no mention of any very high radiation doors in the fuel building. Please update FSAR Section 12.3.1.8.2 to include a discussion of this very high radiation door, (this discussion should be similar to the discussion of high radiation doors

- contained in FSAR Section 12.3.1.8.1 for the reactor building). Include in this FSAR update any design features (such as alarms) associated with this door.
- ii Also, Figure 12.3-34 includes a line between the access hatch area and the transfer pit area in room UFA 16 023, indicating some kind of barrier between the two areas of the room. In order to ensure adequate radiation shielding in room UFA 15 096 during fuel transfer, describe how this barrier impacts flooding the fuel transfer pit access hatch area. Describe if it is possible to flood the fuel transfer pit area while leaving the access hatch area dry and, if this is a possibility, indicate any procedures or interlocks that will ensure that the access hatch area will be flooded during fuel transfer.
 - iii Finally, please update Chapter 12 of the FSAR to include information ensuring that room UFA16 023 will be flooded in its entirety (including the access hatch area) during fuel transfer.
- c. In “22” under item (d), please explain why the radiation zone designation in rooms UKA01 018 and UKA01 022 were lowered from zone 5 to zone 4.
 - d. In “1.” under item (d), the applicant adds notes to specific rooms in FSAR Figure 12.3-47. However, in reviewing Figure 12.3-47, there is no clear indications that note 2 applies to UKA17 058 and UKA17 052. Please modify FSAR Figure 12.3-47 to include arrows or some other designation indicating that note 2 applies to these two rooms.
 - e. In “6.” under item (d), the applicant states that the zone designation for room UKS13 039, shown on Figure 12.3-56, is being revised from zone 4 to zone 6. However, the only room listed as being zone 6 in the FSAR markup of Figure 12.3-56 is room UKS13 047. Please update the FSAR Figure 12.3-56 to label room UKS13 039 as zone 6.
 - f. In “10.” under item (d), the applicant states that the radiation zone designation in room 1UJH05 005, shown on Figure 12.3-65, is being changed from white (no designation) to green (zone3). However, staff believes this may be a typo, since it appears that the radiation zoning designation for room 1UJH05 030 changed from white to green (zone 3) in the provided FSAR markup. Room 1UJH05 005 is labeled red in this figure. Please clarify this apparent inconsistency.