AREVA

October 24, 2008
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U.S. Nuclear Regulatory Commission
Director, Office of Nuclear Material
Safety and Safeguards
Attn: Document Control Desk
Washington, D.C. 20555-0001

Gentlemen:

Subject: **Revised Responses to Request for Additional Information (RAI) Item Nos. 21, 35 and 36 Pertaining to Criticality Safety (Chapter 5 of License No. SNM-1227 Renewal Application)**

Ref.: 1. Letter, R. E. Link to USNRC Document Control Desk, "Request for Additional Information (RAI) Responses Pertaining to Nuclear Criticality Safety and Management Measures (Chapters 5 and 11, respectively, of License No. SNM-1227 Renewal Application," dated October 3, 2008.

During a telephone call between NRC Licensing Staff members and members of the AREVA Licensing staff held on October 23, 2008, AREVA agreed to make minor modifications to Chapter 5 RAI Nos. 21, 35 and 36 that have been submitted in letter per Reference 1.

Attached please find AREVA's revised responses to Chapter 5 RAI Nos. 21, 35 and 36.

If you have questions, please contact me on 509-375-8409.

Very truly yours,

R. E. Link, Manager
Environmental, Health, Safety & Licensing

cc: Rafael L. Rodriguez
U.S. Nuclear Regulatory Commission
Fuel Manufacturing Branch, Mail Stop EBB-2-C-40
Division of Fuel Cycle Safety and Safeguards
Office of Nuclear Material Safety and Safeguards
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RAI RESPONSES – AREVA NP RICHLAND (SNM-1227), October 24, 2008

Chapter 5: Nuclear Criticality Safety

21. Justify the safety factors in tables 5-1 and 5-2 for the infinite slab, and the safety factor in Table 5-2 for the spherical volume. The safety margin for these cases is less than what is listed in the current license application.

    This information is necessary to determine compliance with the requirements in 10 CFR 70.61(d).

AREVA Response:

For the case with slabs, AREVA will change Tables 5-1and 5-2 to be consistent with the current license which permits 85% of minimum critical slab thickness which also matches the NUREG 1520 guidance.

In the case for spherical volume, the current AREVA license permits 85% for volumes > 5 liters and 75% for volumes less than 5 liters or for heterogeneous systems versus the NUREG 1520 guidance of 75%. AREVA does not possess a critical mass of any material that could be made critical in a volume of less than five liters. Additionally AREVA has used the 80% safety factor for homogeneous spherical volume for over thirty years. For plant uniformity and to minimize fundamental limit changes in a large portion of the plant, AREVA proposes using the homogeneous system safety factor of 80% for heterogeneous units also. There have not been any AREVA nor NRC identified safety issues associated with these safety factors. AREVA believes that this track record is sufficient justification for retaining this safety factor in the proposed license renewal.

35. With regard to the use of "peer reviewed handbooks" (Sections 5.4 and 5.4.2.6 of the license application), provide examples of handbooks that are considered acceptable, and provide your acceptance criteria for the use of such handbooks. State how "approved safety factors" will be determined. This information is necessary to determine compliance with the requirements in 10 CFR 70.61(d). This information is necessary to determine compliance with the requirements in 10 CFR 70.24.

AREVA Response:

Peer reviewed handbooks AREVA uses are included in the references listed in Chapter 5 of this application. The "approved" safety factors to be used are those listed in Tables 5.1 and 5.2 of the license renewal application.

36. Provide the validation document listed as Reference 17 (EMF-2670, "PC-SCALE 4.4a Validation," Revision 2) and identify where in this document the nine items mentioned in Section 5.4.1 of the license application are described. This information is necessary to determine compliance with the requirements in 10 CFR 70.61(d).

AREVA Response:

During a telephone call with the NRC on 9/25/2008, the NRC agreed that the validation document listed as Reference 17, EMF-2670, "PC-SCALE 4.4a Validation," has already had extensive NRC review and did not need additional review. However, the NRC expressed concern about significant future revisions to this document. AREVA agreed to notify the NRC of

any future significant revisions by letter. AREVA considers changes other than editorial and routine updates for new code releases using the same methodology and benchmark experiments to be significant changes. This letter will also include a summary of the major changes. The revised text to section 5.4.2.1 is as follows :

"The current validation document is listed in Reference 17. Whenever AREVA makes significant changes to this document, AREVA will notify the NRC by letter and will include in that letter a description of the changes made."