

PR 72
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May 31, 2006

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Secretary
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

DOCKETED
USNRC

June 2, 2006 (8:56am)

OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

Attention: Rulemakings and Adjudications Staff

Subject: RIN 3150-AH93
Docket No. 1030
10 CFR Part 72
NUHOMS HD Addition to the List of Approved Casks

Dear Sir or Madam:

As a concerned citizen and as a person who is well versed in structural engineering, I have reviewed the material on the NUHOMS HD system you have put forth for public comment. I have serious concerns regarding the structural aspects of this design that you propose to license for general use.

My main concern pertains to the way the canister is stored. It seems that the canister is simply lying on a couple of rails. The canister is held in place by gravity and nothing else (no straps, no frame, no structurals to restrain it at all).

I take it that the fuel is stored in the canister also in a non-fixed manner. Therefore, during an earthquake, the fuel will move about in the canister. I gather by reading the Safety Analysis Report that most of the canister's weight is in the fuel. If most of the weight is free to move about in the canister then there is a risk of the canister rolling over and falling down during an earthquake.

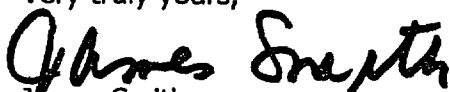
I notice that you allow 0.3g horizontal and 0.2g vertical seismic events (per page 4-7 of Design Features in the Certificate). I assume that these are free-field accelerations at the site. They will get amplified at the pad due to soil-structure interaction. The on-the-pad accelerations will be further magnified at the rails due to the flexibility of the DSC support structure. Combine that with the rattling impulse from the fuel, and you may well have a canister rolling off the rails.

I have checked out Appendix 3.9.9.10.2 of the SAR, to which the Design Features (page 4-1 in the Certificate) refers. I do not find any time history analysis to determine if the canister bouncing or rolling might occur. Even the effect of soil-structure interaction does not seem to be mentioned.

The question is: Does the supplier understand the magnifying effect of soil-structure during earthquakes? And has he considered the kinematic instability of the unstrapped, free-resting canister during the seismic event? Finally, does the NRC consider the analysis in the SAR adequate assurance that the canister will not go off the rails during a design basis seismic event?

Out here, earthquakes are never far from our thoughts.

Very truly yours,


James Smith
San Clemente, California

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