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OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

May 16, 2006

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

Attention: Rulemakings and Adjudications Staff

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

Dear Sir:

With reference to the above noted invitation for public comments, I would like to make the following comments on the proposed Certificate of Compliance on Transnuclear Company's NUHOMS HD storage system.

1. Comment on the Container (DSC) Support Structure:

Page 2 of the CoC states: "...The DSC support structure, a structural steel frame with rails, is installed within the HSM-H module...".

I believe that this method to support the DSC poses a serious risk to public health and safety.

From contact with the air and humidity in the environment, these structurals can corrode from the inside as well as from the outside. Particularly at coastal sites, anything that can corrode - corrodes; even stainless develops stress corrosion cracks. It seems that the upright tubes make up the only support structure for the fuel-filled canister. Note that they are completely uninspectable from the outside of the NUHOMS (you cannot see them). In nuclear plant work, I was taught that all "primary supports" must be inspected periodically. The ASME Code devotes a whole book (Section Eleven) on in-service inspection in nuclear plants. Here, we have a fuel storage canister perched about six feet up in the air on top of a steel frame, which cannot be inspected at all! Seems like a fatal flaw to me. And a dangerous sort of a design for unrestricted use around our country, including the plants in salt air environments, including those located on the two coasts.

2. Flood: Section 4.6.3 of the Generic Technical Specification allows flood "levels up to 50 feet and water velocity of 5 fps".*:

* All verbiage in quotes is directly extracted from the CoC documents.

Template = SECY-067

SECY-02

I have found that NRC and TN have failed to analyze the flood condition that is most limiting from the thermal standpoint.

I am concerned about the flooding condition in which the floodwater rises to fill the inlet ducts in NUHOMS (all of the air inlet ducts in the NUHOMS module lie at the ground level). If the floodwater rises high enough to block off the air flow through the inlet ducts, then what cools the DSC? I should think that, without the ventilation airflow, the DSC would overheat and may even explode from pressure build-up. Reading the information in the public domain, I get the sense that TN has considered flood in their safety evaluation, but only the case of a deep submergence flood in which case the DSC is cooled by the flood water.

In my technical opinion, deep submergence is not a risky condition; low level flood is. The DSC is several feet above the ground. A flood of any height that remains below the DSC will choke off the ventilation air, and cause the DSC to overheat.

Considering that there are many nukes on river basins that are in the potential flood zone, I am surprised that NRC will issue "general certification" to a ventilated cask like this one to be used in flood plains.

I believe that the condition of partial height flood should be given full technical consideration. This is not the case for NUHOMS HD docket at the present time.

3. Earthquakes:

In Section 4.6.3 of the Technical Specification, the NRC has allowed "seismic loads of up to 0.3g horizontal and up to 0.2g vertical" on the system. It is a totally unclear statement.

For example, what is the location in the storage facility to which these g-loads correspond: at the C.G. of the storage system or at the pad surface on the module's centerline? Do these g-load limits include the effect of soil-structure interaction as you allude to in Paragraph 4.2.2? One can make many interpretations of your requirement, which is not a good situation in a Technical Specification.

Also, I find that the DSC support structure is not restrained against all four walls of the concrete module. A 45-ton container resting unsecured on the rails that are not even braced against the four walls looks like a physically unstable arrangement. Has this configuration been analyzed to ensure that failure from <u>resonance</u> would not occur during the earthquake?

I could not find any evidence of such an evaluation in the TSAR or the NRC's SER.

4. Effect of Aging on Container Removal:

Being able to remove the container at the end of 20 years of licensed life should be an important safety consideration. I have asked around and discovered that no plant that has loaded a NUHOMS in the country has ever attempted to remove the container after a few years of storage.

What if the aging of the rails' and container's surfaces under years of weathering, and uneven settlement of the pad from the heavy weight of the module were to cause the canister to bind to the rails? What if the 60 kips of permissible extraction force to remove the container is not sufficient?

This scenario appears to be simply ignored in your Technical Specification or TN's TSAR. There is no basis in the industry experience to support ignoring of such an important matter in your evaluation.

5. Unanalyzed Configuration during DSC Insertion in the HSM:

I cannot find any evaluation of safety during the periods of time when the DSC is being inserted into the HSM. As I see it, there are two critical occasions when the DSC is vulnerable to skidding out of control if an earthquake were to occur:

i. Scenario #1 is when the transfer cask skid has been unfastened from the trailer, the transfer cask lid has been removed, making the DSC axially unrestrained, but before the skid has been fastened to the HSM and the hydraulic ram has been engaged to the DSC grapple ring. An earthquake during this period, depending on its magnitude, has the potential to cause uncontrolled DSC movement and cause a significant radiation exposure event to the workers.

ii. Scenario #2 is when the DSC has been installed in the HSM, but the HSM lid (a heavy circular lid that also restrains the DSC in the axial direction), is not yet in place. Again, the DSC can skid out if an earthquake were to strike, causing a major radiation exposure event.

Both of the above scenarios can be potentially deadly to the workers. I am amazed that TN's TSAR and your SER completely ignore such conditions. They should be carefully considered.

6. Risk of Hydraulic Ram Malfunction:

The DSC is pushed into the HSM module using a simple hydraulic ram that has no redundant load handling features. A simple failure such as loss of hydraulic pressure during the pushing operation would leave the DSC in a partially inserted configuration.

I believe that you should require a single failure proof ram system, or ask TN to demonstrate that a ram failure halfway through the DSC pushing process can be dealt with using credible recovery measures. I do not believe that NRC has ever considered this issue or TN has ever been asked to provide an answer.

7. Recovering a Dropped DSC:

The DSC, according to your SER, can survive the drop from 80 inches height, which is a good thing. What concerns me is how will one lift a dropped DSC from the pad? The DSC seems to have no lifting or handling attachments except for the grapple, which is useable only to engage the ram for a horizontal push.

I believe that you will determine my comments to be significant and sufficiently detailed to justify why the published "rule" should be considered unacceptable.

I have provided some of the above comments in connection with the standard NUHOMS system in a previous letter to Mr. E. Brach dated April 11, 2006. I hope that you will act on them to protect the health and safety of people in our communities who live near storage sites.

Sincerely,

DT
Commentor

From: Frank Robert <dt5fr@yahoo.com>
To: <SECY@nrc.gov>
Date: Wed, May 31, 2006 2:07 AM
Subject: DT Comments Docket No.1030

See attach comments Docket No.1030

Thanks

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