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To: <nrcprep@nrc.gov>
Date: Fri, May 30, 2003 9:38 AM
Subject: Response from "Comment on NRC Documents"

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Below is the result of your feedback form. It was submitted by

Alan Hanson (alan.hanson@transnuclear.com) on Friday, May 30, 2003 at 09:38:07

Document_Title: Request for Comments on U.S. Nuclear Regulatory Commission Package Performance Study Test Protocols, Draft Report for Comment, NUREG-1768

Comments: Draft NUREG-1768

I am writing in response to your letter of February 20, 2003 inviting comments on the Package Performance Study. Transnuclear has carefully reviewed the draft NUREG 1768 report and our comments are as follows.

The objectives stated on page 4 include validating finite element predictions, demonstrating public confidence and providing data to refine dose estimates to the public. The chosen test conditions present a serious risk of not meeting these objectives.

We note the proposed testing includes impacting a full scale spent fuel cask onto an unyielding surface at speeds of up to 75 mph. Such a test goes well beyond the mechanical testing required for Part 71 certification. The probability of a cask accident resulting in this type of impact is so low (10-6 to 10-8 per year) that it should not be considered as a credible event. Such a severe test is totally unnecessary to meet the objective of validating finite element predictions for cask responses. Transnuclear believes the methods used for predicting cask behavior under impact conditions have been well validated by the scale model drop tests performed in support of Part 71 certification. Indeed, the worldwide experience in cask certification has generated a wealth of data to justify both the laws of scaling and the methodologies used to predict impact responses.

Public confidence is a very worthy objective, but the test program needs to be carefully chosen to achieve maximum benefit. The very concept of an unyielding target is difficult to explain to the public, and their focus will certainly be more on the impact speed because it can be readily related to transportation speeds of trucks and trains. It is therefore essential to design a test program that will give 100% certainty of a positive outcome and remove any doubts about cask safety under severe accidents. For example, impact testing a cask onto an unyielding surface at 75 mph will induce loads far in excess of the design based accident used for Part 71 certification and might induce stresses in the containment boundary which result in a loss of cask leak tightness. This is recognized on page 11 of NUREG 1768 where it is argued that loss of leak tightness of the cask does not imply failure to contain radioactive contents because of the particulate nature of the contents !

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d the presence of other barriers such as the fuel cladding and a welded canister. (It should be recognized that most spent fuel shipped today and in the future will not be in canisters). This argument is intrinsically weak and it would only increase public concerns about a cask's ability to protect the environment. Any loss of cask leak tightness would be deemed a failure in the eyes of the public and such a result would seriously undermine public confidence in the current cask certification system.

The third objective of providing data for dose assessments will rely heavily on the performance of the particular cask being tested. If only one type of rail cask is tested, this will only produce one data point. The proposed impact test conditions represent impact loads far in excess of the Part 71 certification and will therefore induce a response which is ether somewhere within the specific cask margin to failure or perhaps beyond it. Every cask design will have unique features which will make it impossible to

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A.S. Murphy (A5M1)

determine a generic prediction of severe post impact shielding and containment.

We, therefore, conclude that the proposed test program does not meet the specified objectives and should be revised. Transnuclear fully supports the principles of enhancing public confidence in the safe transportation of spent fuel, and we believe this is best achieved by separating the pure scientific research elements from the program and focusing more on a full scale public demonstration test. The test condition could either be identical to the Part 71 test or a simulation of a realistic accident condition at a higher speed but onto a realistic target such as a vehicle or building. Transnuclear is willing to actively support such a test by making available, at no cost, a full scale production TN-68 rail cask (without impact limiters). This cost sharing offer is conditional that Transnuclear retains the right to confirm that the chosen test conditions do not exceed those currently specified for Part 71 certification.

I hope the Commission will seriously consider Transnuclear's comments, and I remain at your disposal to discuss the details of our offer to provide a TN 68 cask.

Sincerely,

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