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LOU DeBOTTARI: My name is Lou DeBottari, D-e, capital B-o-t-t-a-r-i. I'll start with the paragraphs that I missed last time.

1 Page 2-15, first paragraph, nowhere have I seen any reports on the success rate of encapsulation of high-level waste. Is this still in development? And if so, what happens to the plan if the process is found to be defective?

2 Page 2-15, paragraph above section 2.3.2.2. The last sentence is loaded with adjectives that are weasel
3 words. I assume that DOE always will carefully plan. Implementing a fuel blending procedure will be very difficult near the end of the program when there are fewer waste packages to blend.

4 Page 2-22, DOE makes the statement that 70 percent of the heat generated by the waste packages will be vented. The forced air mode will mean that air is drawn out, and the failure of a waste package would require that the ventilation system be shut down to prevent dangerous particles from being vented to the outside atmosphere. This shutdown would result in significant heating within the repository. I did not see this scenario analyzed.

5 Page 2-23, section 2.3.4, the engineering barriers are to support the natural barriers. Nowhere have I seen any discussion of the maximum rate of a water travel through the repository to the water table. It is clear that DOE is concerned about water and has gone to great lengths to use engineered barriers as the first line of defense to ensure containment of the waste.

I'll amend that comment by saying that they talk about after 10,000 years the waste packages will not have any containment except the natural barriers. And after 10,000 years we still have the half life of plutonium of 24 years and you still have the actinide half life of over a million years. Nowhere have I seen how long the waste will be contained without the engineered barriers. I'd like to know how long those things would last without the engineered barriers.

Why hasn't this been analyzed and reported? It is fundamental to the basic requirements, unless DOE is planning to get the fundamental requirements changed so the natural barriers be a larger percentage of the barriers.

6 Page 2-23, section 2.3.4.1, nowhere have I found the time required to remove a worst case position a waste package that has failed prematurely. And I don't want to hear that they're not going to have any failures for 10,000 years. They can't prove that, and that has to be an absolute because they're saying that nothing is going to be out for 10,000 years, so that's a guarantee. That's not any kind of a percentage.

When one includes a worst case when both the forced air failed and a cask has failed, what will be the amount of material emitted to the atmosphere? What is the maximum temperature a waste package container can withstand before it releases material?

Has a cask been tested to ensure that it can prevent emitting gases and material? And if it hasn't been tested, how do you know that the temperature rise that you're planning for is adequate if the temperature rose because they failed?

7 DOE writes about their magic bullet, Alloy 22. The welding and bending of this material changes its properties. DOE mentions that the materials will form an oxide coating that protects the metal. This will change when the material is welded. I doubt the cask can be remotely placed in a repository without breaking the oxide layer at various contact points.

On that same subject when you use two different metals and even if you combine them very tightly there's slight motion so the oxide layer will be broken between those two. I use the outboard motor industry as a classic example. If you use your aluminum housing and stainless steel screws, it doesn't take long before you can't get the screws out because they have corroded together. And that's because when you go in and tighten down the screw, you break the oxide layer.

Page 2-25, the statement that different corrosion-resistent materials will reduce the probability that a single mechanism can cause a failure of both materials, I don't think that's correct. How about electrolysis caused by dissimilar metals?

8 Page 2-25, second paragraph, if the drip shields are placed on the packages just before closure, what is the timeline from placement of the first drip shield to the last and what happens if there's a failure of the first waste package that received the shield as the last drip shield is put in place? This is a worst case that should be analyzed.

I believe that the timeline will be long enough that material will be emitted to the outside and again will violate the requirement that the natural barrier shall ensure that the material cannot contact the outside environment.

MR. FLAHERTY: Sir, why don't you begin to wrap up, please.

LOU DeBOTTARI: Just finish the sentence.

9 DOE must supply a timeline that is realistic with the analysis that shows that the temperature rise will not be exceeded if the vents are closed while the casks are being removed. From what I have read I doubt the worst case condition DOE has demonstrated by this analysis. I haven't seen any yet.