January 4, 2007

Questions on DOE/RW-0585- Preliminary Transportation, Aging, and Disposal canister system Performance Specification (Rev A)

1. (p.6) some of these codes and standards are pretty old, should they be updated – water pool ISFSI 1988 / Freight containers 1990?
2. (p.8) The internal basket of the TAD canister will be both in the vertical and horizontal positions – How will the basket be supported so assemblies stay in place and are supported on top, bottom, and all around during changes and in these positions?
3. If spent fuel is stored wet in the pool, dry in the utility storage, wet again in unloading, dry again in loading into TAD canister, in transport, and in aging in Nevada – what happens to the pellets, cladding, and especially to CRUD in this back and forth wet to dry? Have any actual tests been done on fuel actually stored for a long period of time and wet again in unloading? If a problem arises with a TAD canister at Nevada, then in unloading that fuel would be wet and dry a 3rd time? What research has been done on effects of this wet /dry cycle? What can be in CRUD? Can pellets crack and break up, can blisters flake off the cladding? Can the pool be clouded?
4. (p.8) TAD service lifetime minimum 100 years, without maintenance – any testing of the real thing over any time at all? Has one ever been built, much less tested? Over what time period? This needs to be done before any are actually loaded at reactors.
5. (p.9) Canister outdoor average daily temperature range of 2 degrees Fahrenheit to116 degrees Fahrenheit doesn't seem low enough if it is to be used in Wisconsin – we have below zero temps here often in winter – there was concern in VSC-24 design for brittleness in low temperatures. Shouldn't criteria be for lower temperatures?
6. What research has been done on existing canister designs used at plants already? Lessons learned? Fuel inspection after storage of low long? How much unloaded any place? How long stored any place? We need to learn from what has already happened. References?
7. What is "room temperature"? This is a strange criteria for neutron absorber plates or tubes extension. If disposable control rod assemblies and other items outside length and width criteria are allowed inside the canisters, how do the neutron absorbers cover them? How long do these absorbers continue to do their job? Where real thing used over time and tested?
8. Closure welds of the canister are of main importance. The procedure for welding and testing of the weld for flaws and cracks and thickness are of concern. What will they be? Apparently all lifting depends on this weld holding up the loaded canister. The lifting ring design looks like a grappling jaw will engage it at 3 points. How do you know it is engaged? What could disengage it? Limits of lift height? What can it be lifted over? Will the canister be lifted up over the disposal overpack and lowered into it? How much leeway between the canister wall and the inside wall of the overpack? Can it get jammed? If jammed, will the lid weld hold to get it out or in? Has this been tested? What keeps the canister from swinging in this lift procedure? Our VSC-24 in Wisconsin was loaded into a transfer cask that perched on top of the overpack for storage and then doors opened at the bottom of transfer cask and the canister was lowered into the overpack. How will TAD canisters be put into storage, aging, or disposal overpacks? All the cables and lifting procedures and implements need to be really used and tested. Air pads for lifts (and

jacks) can deflate. Does any ISFSI really use them? Problems? The VSC-24 was designed with openings for a forklift, but never used. We had a transporter vehicle that the loaded cask was strapped onto and taken to the pad. If a forklift is not ever to be used – then an aging (storage) overpack should not have openings for it as it interferes with the design of the vents on the bottom for cooling. A design should be used only for transport processes <u>really</u> to be used. If a transporter is the best method, and safest, don't design overpacks for air pads or forklifts. This TAD canister and overpack system should not be just "redoing" of an existing system whether it fits or not. It should be designed for the TAD system. (p.21) Why a 3 point drop or tip only?

9. (p.14) "markings" – shouldn't every lid be able to fit every canister? We had trouble with this at Pt. Beach – there must be clear criteria for fit up. What are they? When a canister is loaded and ready to be sealed, that is no time to have to find another lid, because the one you using doesn't fit. Shims were used to make them fit — these will most likely be a big problem in unloading. Will shims be allowed?
10. (p.21) "No material requirements, prohibitions, or restrictions have been identified for the aging overpack". This is very strange. The VSC-24 overpack for storage (and the pad itself) had all kinds of criteria. The overpack concrete was of a certain type, mixed a certain way, rebars installed right – etc. etc. (mistakes in each case were made!). The pad needed to have <u>soil testing</u> at the site for seismic stability etc. The possible criteria (D-1) of a "hold-down" plate and "keeper clips" to provide protection for a cask to remain upright on the pad is something I've never heard of. Why? Shouldn't the aging (storage) overpack provide stability in itself? A "hold down plate" and "steel embedment" flush with the pad surface seems very strange. How would a utility do this if they used TAD on a pad already built at their site? And why ?? Not required for other cask systems I know.
11. What is the criteria for the position of the canister inside the disposal overpack and the position of the disposal overpack on the drift invert? The contents condition in the inner basket directs its position inside. You need to know what's going on <u>in</u> there at disposal time. The walls of the canister depend on the stresses and weight of the position of its contents. For example, if the fuel is shifted repeatedly from horizontal to vertical and back again, and bounced across the country by truck and rail, lifted by many devices, etc. How do you know if that assembly or that basket is intact inside there? Are the neutron absorber plates still in place, or even intact after all this movement and time? You can't <u>assume</u> that the contents are what they were at loading. So how can you know? All the computer data and research for the repository system appears to depend on intact fuel assemblies in canisters to be put in the disposal overpack. What if they aren't? What if the basket doesn't hold up and pellets are cracked or crud powders or things come apart and fall to the bottom in there. Then when disposed of on its side, will all the weight and stress be on the side it rests on and an air gap at the top of the horizontal canister? The canister should not sit on the cylinder side seam weld of the disposal overpack. That weld is a weak point. Can it be ground down at all? What tests have been done on its material and process? It connects two alloy 22 surfaces but the weld has no protection passive layer. If all the weight and stress of the canister (inside) is on this overpack weld, it may not hold well. But at the top it may collect water. It should be on the side position so water runs over it, not pools in it. What's the disposal overpack to be made of and how does its criteria depend on the canister specifications?