

June 7, 2007
1952 Palisades Dr.
Appleton, WI 54915

Public comment to all members of the US Nuclear Waste Technical Review Board by Fawn Shillinglaw, on Spring Bd. Meeting May 15, 2007 in Arlington, Virginia: after reading transcript:

1. (p. 32, line 11 and 12) It states here, “As long as the drift itself is above the boiling point of water, water will not get into the drift.” Is his a valid statement? How much water, over what period of time will a boiling temperature actually keep out of the drift? If a tremendous amount of water (a torrential rainfall, etc.) filters down at a very rapid rate, what are the real possibilities? Where are the limits in time and quantity and temperature that would cause a problem, even though unexpected? (Nobody expected the explosion from materials interaction in the cask at our Wis. Pt. Beach plant either, and didn’t even know why it happened when it did – so I expect the unexpected.)
2. (p. 47 - bottom and 48-top) Dr. Latanision makes a very good point – in this evaluation of the surface chemistry introducing UO₂ as the surface powder -- an evaluation of the function of time is certainly important. Also, the J-13 water is not overall prevalent, and the iron in the drifts, as well as other materials, are not part of the experiment. So does this represent any reality in a drift at all? What were the Russians doing this experiment for? Also the concern of “swelling” could really show problems.
3. (p. 49, line 11) Wymer says here, “of course the UO₂ pellets are all cracked.” That’s the first time I’ve seen that stated. And why wouldn’t these cracked pellets be a concern in storage at the plants and in transportation? Can the pellets be shaken up so violently on these trains, truck, upending casks, etc. trips “cross country” to Nevada, that they become powder? Remember, they have been dried (in some cases) for years out in casks on pads at the plants – not wet in pools. How much checking has been on fuel rods transported long distances after being in dry cask storage say 10-15, or more, years? Is this an unknown? It may be a very important factor. I have always been concerned about the condition of the assemblies – pellets, rods, etc. – blisters, hairline cracks, ‘crud’ on surface – will it all hold together inside as long as expected? Who really knows? What can the ramifications be? What tests are needed?
4. (p. 53) I think thinking of eliminating that drip shield is getting way ahead of what these Russian experiments show. If the reason for packing UO₂ inside or outside the TAD will cause insulation and heat – this is a real disadvantage.
(line 20-23) And Murphy here relates the coating of “secondary uranyl materials and a “large volume increase” upon hydration and oxidation of UO₂. So let’s not get so excited about using the repository to get rid of depleted uranium, please, unless there is total understanding of all interaction results with experimentation (over time) of all materials involved. Materials

interactions, and new material created from these, and their interactions, are of great importance to me.

5. (p. 59, line 16 - 18) Wymer states “the complexity gets out of hand” – “it’s far too complex to really model realistically.” This is what worries me. The repository design should be made as simple as possible – for as much understanding as possible – with this rush to licensing, it appears to me we are a long way from understanding long-term processes and interactions well enough to convince the public you really know what to expect long-term. And safety should be top priority and I don’t think it is any more. There is a huge impetus to get this built now, no matter what.

6. (p. 95, line 11-17) This reminds me of our vendor for the VSC-24 at the Pt. Beach plant in Wis. He kept assuring everybody that he’d sort of “solve” all the technical problems after the design was licensed, and NRC often went along with this (even to accepting that unloading the cask was just the reverse of loading it – which certainly proved to be wrong!). Why should NRC license a so called generation I design when a generation II design is in the works? This is just plain wrong and puts everything at risk. You end up with all kinds of casks and changes and more changes that confuse everybody from contractors to subcontractors to workers loading casks at plants, in transport and at the repository. All these years there has been a constant call for standardization and integration – two keys for getting things to move along smoothly. And now it seems that the cask design is always in limbo because they left it to the end of all the studies, and there isn’t time to do a good job on it in this rush to licensing. This is unfair to the public who have to accept these TADs on roads next to their houses and cars, and on rail tracks through their towns etc. Public safety demands that the TAD design get full attention and gets finalized and fully tested before even one is used in the public domain. We don’t want a flimsy concept that gets constantly changed over and over and over, because that first ones were no good. I’ve seen this happen in dry cask storage history way too often! Constant changes cause big problems all along the system. Let’s get it right the first time even if it holds up licensing. Common sense demands this to protect the public.

7. (p. 97, line 5) It states here, “We propose eliminating a lot of the conservatism in the current waste package design.” This really concerns me! Conservatism is there for a good reason – because there are way too many assumptions and uncertainties with models of the whole repository system – from plant to repository to cask design etc. etc. It needs to be conservative, as over time, this conservatism may well be chipped away a bit as we find out how things work in reality – not computer models – if you throw conservatism out the window you may be “throwing the baby out with the bathwater,” as my grandma used to say. Don’t let this happen. It’s Pt. Beach all over again!!

8. (p. 107, line 5-9) I find this whole presentation of a new cask design astounding at this late stage. All along, alloy 22 was touted as the answer to all our problems and now here this group says it’s “this passive film” -- “in the wrong environment – could fail – and you can get into localized corrosion, or stress corrosion cracking, or other mechanisms.” All of a sudden, it’s no good! Yet this new material they tout also depends on a passive film – so is it really any better at all? Or just cheaper! In the end, with so many such projects, all the planning for the best and safest design is discarded to cut costs and, as we all know, you get what you pay for – quality

costs money in buying peaches, or clothes, or whatever, and do you really want to cut costs when it can also cut down lives in the process in the future? I don't know the background of this team from Reno, but I surely question that they have much understanding of the total system at all.

9. (p. 99, line 1-2) This term refers to “weathering steel” or “core-10” developed by the US Steel Co. Is their proposal funded by this company? We are at the point now where the competition for making big money on this project is going to look good to vendors and contractors etc., and they are all going to try to show the government that they can do it cheaper. Do we want a “cheap” system, after all the money poured into this to create a quality system?

10. (p. 100, line 9) This new material – core-10 steel is 98% iron he says. “Iron” has always been a red flag word in dry cask storage for me. It causes problems. Be careful!

11. (p. 108, line 20 and 21) This reference to some iron spikes buried in Scotland 1900 years ago proves nothing. Certainly others can show iron buried ages ago completely deteriorated. That this group published this in “Nuclear Engineering and Design” shows they are adding fuel to the fire in cutting costs and reducing conservatism and a quality system of safety. This is so often the case in the nuclear industry. Ramifications of such thinking affect future generations. That is why we are stuck with all these waste problems now, -- long after all these plants supposedly generating electricity so “cheaply” is ending up costing this country so much! What does total cost look like now?

12. (p. 113, line 23) His reference to the zirconium cladding doing any protection, after all these years of wet to dry cycles, in the pools, in the reactors, in the casks, in transport, etc. – this zirconium cladding has been in use as a workhorse for many years and it shows the wear – blisters, cracks, pinhole leaks, coatings of crud and chemicals – who has done any testing of the cladding to show what it would really be like when it finally reaches Nevada? – or after being handled again and “stored” on the surface at Nevada? I distrust any dependence on this cladding at all.

13. (p. 118, line 8 and 9) This GNEP partnership promoting the nuclear industry really frightens me – here we go again. He says, “we will not separate pure plutonium, and we want the rest of the world to do the same.” -- Dream on! History has well proven that the rest of the world does what it wants and terrorism is on the upswing. Are we going to get Korea to do what we want in the future? – as well as the whole world? I doubt it! It looks like we showed them how to create the bomb, how to get the plutonium, how to build the plants, etc. already. Now he says, keep the genie in the bottle --? impossible! and we all know it.

14. (p. 120, line 20) Why would we want to “increase” the cost of electricity to produce more vitrified waste, “recover” dangerous emissions to store, use an extremely complex system of reprocessing, etc.? Why? When wind, solar, geothermal, etc. is becoming more and more cost effective and is safe? Makes not sense at all!

15. Why does this person not discuss a 2nd repository at all? It would be needed, right? Does anybody actually think this is even possible? Creating more waste means it will be needed. And we sure don't want it in Wisconsin any more than any other state will accept it.

16. (p. 32, line 21 and 22) His reference to “supplier nations” and “weapon states” implies he expects control over all this in the future. I say, once again, dream on! Take a good look at the initial expectations of all things nuclear, and look at what history has given us instead – more and more waste problems, aging plants, more weapons production, and waste production in the world, and more conflict – we can’t police the world and we can’t rule the nuclear world in the future. That’s reality – let’s face that fact. Not create more problems.

17. (p. 133, line 5-9) He says we need to “make sure that we have a strong nuclear energy program” and that we only have “one repository in this century.” What? In this century? So, after he’s dead, so what if future generations have to deal with what he’s created? When are we going to try to do what is best for our kids and grandchildren? Global warming is already going to cause a mess for them. The costs will be enormous. The total picture of what’s happening to this world needs to be considered. It’s all connected in the future. It is.

18. (p. 136, line 3 and 4) Even I, as a concerned citizen, distrust a “cartel” of supplier nations to set a competitive price. – Agreements will be made, and user nations will be upset. This is the kind of stuff that creates black markets for terrorists and creates conflict. Here we go again. History has proven this sort of thing has backlashes! Big ones!

19. (p. 137, line 13 and 15) He says, “We know that there are some companies out there that would just love to build a big reprocessing plant. In fact, my company would like to build one.” OK – this is a promotion for what company? There is greed in the air in this presentation and we’ve seen it all before – fast track, get it licensed, solve the problems later (or never), deal with the waste in future generations. Who does this group represent and who is funding it?

20. (line 22 and 23) The fact that he states they “don’t have time “ for a pilot plant, but that he’d “feel more comfortable if they had a pilot plant” reveals just what a fast track this program is on – don’t want to even bother testing it or making necessary changes to get it right – then all the problems will be with a full scale plant. Makes no sense to me!

21. (p. 138, line 14) And, of course if you take waste from other countries, who deals with it and reprocessing does create waste? “It’s not resolved,” he says. (The cart before the horse again as I see it.) Maybe we should plan, as he suggests here, to put all extra capacity needed “in his backyard.” I think his neighbors would complain, don’t you?

22. (p. 162) It sounds like vapor, volcanic glass dissolution, dust and caliche, need to be worked into this water model. It is way too simple!

23. (p. 217, line 20 and 22) I’m glad they are testing prototypes of the cask design. I’d really be interested in what this “receipt inspection” looks at to see what damage was done in shipping the cask across the country. Do they consider internals or just external? What do you think should be done?

24. (p. 218, line 12) The whole emplacement and retrieval equipment and procedures should definitely be tested with actual waste packages. What if a tunnel gets blocked or a fire starts in there?

25. (p. 220, line 21 and 23) Annealing causing distortion can really be a problem in fit up. Are they going to accept a cask with a specific lid that fits it or should all lids fit all casks so that, if there is a problem loading one – they can use another? This is important. We had such fit up problems with lids at Pt Beach. Are shims going to be allowed in the welds to fit up? We fought this use, as it creates real problems if unloading becomes necessary. Details like “shims” are what they don’t tell you at the beginning till they cause concerns. I’d really like to see a diagram of these “sleeves” they reference. All this deforming really bothers me – should machining be necessary?

26. (p. 221, line 4) If you have to add “extra fabrication stock” to the outer corrosion barrier to “allow some machining,” what will this cost? Extra “fix ups” always have costs.

27. (line 6 - 8) It is very good that Petroski recommended to inflict the damage 1st, take the residual stress, and after that, then do the corrosion testing as damage certainly can, and will, affect corrosion.

28. (p. 228, line 13 and 17) Latanision makes a good point that the real world isn’t a polished surface. And this heavy oxide layer could really be a problem with all the dependence on Alloy 22 and its passive layer. We don’t want surprises after the casks are in the drifts!

29. (p. 230, line 10) Certainly, this distortion should be “prevented up front.” If you start with a process that causes the inner package not to fit necessitating machining, you already have a procedure that could cause more problems – that cost a million dollars each – certainly they shouldn’t have to be machined to fit!

Well enough, I’m going to mail this. Once again I thank you the Board for their astute questioning and hope you always keep public safety at the top of your concerns. If we have to have a repository at all – make it the best and safest you can – don’t let them cut costs and make a mess of conservatism. This is too important an issue to the whole world. Thanks again to all members of the Board. Keep on your toes! And watch carefully. We depend on you.