

1952 Palisades Dr.  
Appleton, WI 54915  
March 6, 2009

Dear Dr. Garrick and all NWTRB members,

Thank you for reading my notes. I know I don't understand a lot of the material, but I do have some history to relate to the cask issues, having worked so hard on it years ago.

I saw this cartoon in the paper and had to share it with you. What do you think of the little girls "magic math method"? I sometimes fear that's "how science works" to get the repository licensed in time to make the utilities happy. I hope the Board members keeps the NRC "on its toes". Keep asking those great questions and, please, ask for an extension of your mandate. We need you in place until the waste is really "disposed" ---- until long past any retrieval may be necessary ----- and for a 2<sup>nd</sup> repository ---- 3<sup>rd</sup>? Whatever may happen until this country moves beyond nuclear power ---- we need the NWTRB there for oversight. Your job is very important for public safety. Thank you,  
Fawn Shillinglaw



Page 1 of 20 pages

Public comments on Winter Bd. Meeting of U.S. NWTRB at Las Vegas Jan 28, 2009 ---- from Fawn Shillinglaw, 1952 Palisades Dr., Appleton WI, 54915 – Feb 25, 2009 (from Transcript Pages)

To all Board Members:

p. 21 Lines 8 & 9

This demonstration of a TAD design Canister System, "at a utility site by May of 2013" needs specific criteria from the Board. I think it should be a full scale actual canister, and actual spent fuel be put into it. There have been too many faulty tests done with smaller replicas of a design, and with testing devices inserted that actually create false data because of their insertion in the cask. This has to be studied carefully, before done, or the results aren't accurate. I remember the pressure build-up in the test of the small scale VSC-24 cask that no one bothered to try to account for, and blamed on the testing device as I remember it now. I always thought that could have been the hydrogen gas build-up that eventually caused the explosion no body expected at our Wis. Pt. Beach plant ---

when the actual full size cask was loaded with real spent fuel. Any concerns in tests should be accounted for --- no matter how minimal they may be at the time --- they may be major later in the actual use of the real thing. That's why we wanted full scale testing of the VSC-24 and were disappointed not to have it done here.

p. 21 lines 19 & 20

Eighteen contracts already signed for new reactors? And do I understand this is a contract for their waste disposal? Where? When? How? I think the interim storage and 2<sup>nd</sup> repository issues need to be looked at carefully by the NWTRB now. I request the Board itself ask for an \*extension of their existence beyond the mandate of existing "no more than one year after the 1<sup>st</sup> unit of waste is disposed of in a repository". What does "disposed of" mean here? I'd like a clear definition please.\* Just "put in"? or really disposed --- That means "gone away", doesn't it? That is a long time from just filling a drift and shutting the door! Is waste "disposed" while ventilation is still going on? Is it "disposed" before drip shields are all in? I think it is NOT disposed until you can prove retrieval is not necessary. What if, a year after you call it closed, retrieval is necessary? And the board is gone! Who will defend the public then? I really worry about the Board disbanding way too soon!

The reactors in existence now had contracts. Look at the mess those are in. What makes you think a new reactor contract will be any different? Please have a meeting on interim storage, new reactor contracts, and secondary repository concerns. The public is not informed on any of this. And we will live near new reactors, interim waste sites, and future repository sites. We need to know how the board is going to deal with these issues in the future. This is very important to us. We need you.

p. 22 line 2

\$2 ½ Billion for 5 years = 12 ½ Billion \$\$ to USA Repository Services. That is a lot of money considering the economic problem in our country. And that is only a small part of the total cost to the public (which is the government after all). A lot of people could use that money for better uses right now. What a waste for waste disposal! And rate payers will foot the bill!

p.. 31 Lines 12-21

This is very ominous. If there is one thing I found out over all my years of dealing with the NRC in certification of the very first generic cask – (the VSC-24) is that it is a real problem when too many groups do not communicate – and that can happen again easily, when, as Jack Davis says here, "the reason that they (NRC) assigned a number of boards was just to meet the schedule." This is a real mistake I think. Nobody gets a clear picture of the total waste system, from beginning to end, this way and the concerns that should be interconnected get lost by the wayside. That was the whole problem with the "Safety Analysis Report" and the so called "Final Safety Analysis Report" NRC did for the VSC-24 cask design --- it was always in flux --- change after change -- and nobody was on the same page or updated as to what version was current. It was a mess! Mr. Davis says he doesn't know how these NRC board will go about consolidating to make sure they are all consistent --- Why can't he answer that? I see big problems here.

p. 32 line 16-18

p. 33 line 12-17

In response to Dr. Abkowitz's question about Yucca Mt. being an "impediment", Dr. Dyer says that "the new reactor contracts add future spent fuel into the queue for a repository" and the government is taking on the liability. Whoa! I didn't know about this. Talk about the cart before the horse! How can you possibly allow this to start all over again? Unbelievable!! You can't possibly build new reactors and insure disposal for their waste when Yucca Mt. hasn't proven anything yet at all! This puts the public at risk all over again. Do all of you on the board agree to this??

p. 35 Line 1

(96.1 billion \$\$ already!!)

p.43 line 25

The Board should place close attention to the soils testing and boreholes in the area of the proposed "aging" pad where fuel is to be stored, as it may stay there for a long, long time. The fact that there were "tie downs" (or "anchors" of some sort) for the storage cask design I saw a while back, shows a concern for instability of the casks that I have never seen for any other site. Why would these be necessary? And what are they? And how proven to really work? I am very curious about these "hold down" wires or whatever was needed??? What actually are the seismic hazards far into the future? At the pad site?

----- (a concern) -----

It appears the Board has had a concern that work is being done mainly to fulfill licensing criteria, and that is a good concern. This is a 1<sup>st</sup> licensing, just as our VSC-24 was the 1<sup>st</sup> generic cask --- so really the certification criteria for future generic cask licensing came after our cask was certified. We were the guinea pig, and so is Yucca Mt. Unknowns won't be looked at any more unless the NRC asked for such criteria. Money is going to be tight, so getting that license is the main order of the day. Be alert to other areas of concern that need attention.

p. 64-65

As you know from my previous comments on meetings, I see DUST as a major concern. Construction dust, atmospheric dust, sucked-in air ---"breathing" of the mountain itself", rock disturbances trickle down the fractures, dust from casks themselves, from all the movement and all the materials. Wet dust, dry dust, heated dust, dust that changes into other materials, dust on the surface of that passive layer of the casks, volcanic dust or seismic dust in the future creations, What else??

p. 67 line 23-25

Why is the amount of soluble calcium increasing 20%? They don't understand it. Should this be found out?

p. 69 line 25

p.70 line1-6

Dr. Latanision does not seem satisfied with the so-called corrosion protection. I never have been at all. It is a big concern yet. Keep asking hard questions about this. It may be the Achilles heel of the whole repository.

p.75 lines 1-9

The responses, “we don’t understand that nitrate loss either” and “I don’t know” are just not acceptable at this point in licensing. This should be known by now! Why haven’t these experiments been done? Chemical reactions – creating new materials – was the crux of the problem in the unexpected hydrogen pressure in the VSC-24 cask. Let’s never let that kind of thing happen again because of a rush to license and lack of testing.

p.77 line 4-10

The Board needs to be tough on this issue. It should NOT be FEPed out at all. The “assumption” needs to be challenged until acceptable to all. Localized corrosion is a major major issue.

p. 93 line 18-20

Yes, and what about future ground motions caused by a terrorist attack? How has that possibility been evaluated? You look hard at the past, but what of the future hazards? The unknowns of future wars, or, even some maniac from the U.S., getting hired to work there somehow, and exploding a device. You see this stuff in the movies and computer games – who knows what the future can bring to all this radioactivity gathered in one big target? I worry about this --- don’t you?

p. 136 line 1 & 2

It seems imperative, because of the chemistry issues, that the friction inflated rock bolts and Bernold sheets be used to prevent rocks from resting on the rails. You don’t want cementitious materials in there even if they are cheaper. If this is going to be done “on the cheap” then surely any accident that can happen, will happen. Once you have “any thing” on those rails, your remote system won’t work. What other problems with the rails have been looked at? What are the rails made of? How aligned? How affected by temperature changes and chemistry changes? How repaired? The rails being kept in shape are essential. Any ideas?

p. 150 line 11

It appears that NRC has set a cladding temperature limit. Is that so? How does anybody know what shape or thickness the cladding is? What about the layer of CURD and chemicals from pool water on it? What about pinhole leaks and hairline cracks in it? I have always been very interested in the behavior of cladding over “the wet, dry and wet, dry” sequences of its history – in and out of the pool, in dry storage (in a Wisconsin winter temperature extreme). Where is the actual data on the condition of any real cladding over pool storage and dry storage at a utility? Plus transport from the utility? I still feel this is an important unknown. What does the board think about this issue?

p. 159 lines 5-11

So it is now clear that backfill cannot take the place of drip shields, and more and more is dependent on those drip shields actually being able to be put in the tunnels. Is the board satisfied with the equipment and procedure to do this? Have you looked at this in detail?

p. 161 lines 10-12

So, is Dr. Duquette inferring that what needs to be done yet is extensive corrosion experiments on alloy 22 after it had been phase separated in the tests/ If so, let's get this done!

p. 164 line 25

I remember lots of discussion about neutron absorbers years ago in different dry cask designs --- how effective they would be over time, location of panels and assemblies for effectiveness, how they were manufactured, inserted, etc. you know it all goes back to this --- what was really done inside those early casks sitting on pads at utilities all these years. I think, if you allow dual purpose casks to equal a TAD, you are making a big mistake. They should be opened at the utility and spent fuel put in TADS before transport across our county in the public arena. It's the only safe way to be sure you know what you have in there. Don't let's have surprises!

p. 174 lines 10-14

"Schoepite" --- never heard of it, have you? So is it correct that improper manufacturing (or absorber misload or waste misload – human error) could result in this substance being formed? And it is quite reactive? What do you know or want to know about this? Seems to need some questioning. We certainly had manufacturing problems with our VSC-24 cask --- to the point where all production had to be halted! It was a real mess! Weld flaws were sometimes not even reported and covered over. There is a huge impetus for subcontractors to get the job done in a hurry, and not fulfill all specifications. A lot of places are just not used to the nuclear criteria and how important the details are. You can't pass through a product unless it really has met quality assurance specifications in detail. This is where money takes over and causes problems with vendors like in any other business, corners get cut.

p. 177 line 17-18

Well, certainly the fact that Navy spent fuel packages are "classified analysis", and are not as rigid or structurally sound, makes the public concerned about DOE material going into the repository. Knowledge of any thing about the history of INEL, and other government waste sites, is certainly cause for concern as to what havoc these Navy packages might cause. Can't the Board do an "in camera" look at this analysis or something? Certainly it \* \* should not remain an unknown to the NWTRB. You need to know. This is important!

p. 184

Dr. Garrick states a question has not been answered --- "What is the criticality risk in the waste management system?" He guesses it will be a greater criticality risk out of the repository than in it. So what does this really mean? What is the risk to the population if

we stop creating spent fuel right now, and leave the waste already created at reactor sites and shut them down. If NRC only exists, as he says, because of risk \*to the population, then why is that not the main topic of every thing?? Certainly the risk of repackaging and transport – the movement of this spent fuel in different positions vertical to horizontal and back again, hauled out of different chemicals in each pool and different dry storage temperatures – bouncing along our rails and highways all those years – has to be a big risk to populations – and so why are we building new reactors, more waste to haul, and more risk to populations? Are we (9) afraid to put the NRC out of a very costly business? The economic situation of our county can't afford to pay for all this, and it was never supposed to be billed to ratepayers, taxpayers, and human health problems – but it is. So then --- look at the real total system of the radioactive waste and risk. There must be better ways to get energy and protect the public --- you know there are. It's not only the risk, it's also the tremendous cost to our kids and grandchildren, and if problems arrive with the repository, costs will soar! I always think it's like the A-Bomb. So much money put into it, that they wanted the bang for their buck no matter what. Now we have Iran and Korea, etc. How do you see our military safety with terrorists having nuclear materials available? What will happen 500 yr. from now? Are you thinking about all this? Are you of the Board risk managers to protect the public, or “compliance managers” just doing your duty to fulfill regulations? I think you are smarter than that. And I doubt it's really “a fun position to be in” --- instead it is one of great responsibility I'm sure.

p. 218 lines 14-18

I really think that direct disposal of dual purpose casks can probably be “analyzed” to death and you'll do it (without opening them) and taking credit for boron will be a worry you will get rid of --- however you “make it work” I still think it a mistake. Open them and put the fuel in TADS.

p. 212

Ten years ago the debate on using burn up credit was just starting, now we have MOX fuel too. Is the history of the analysis and use of burn up credit (10) really ready to be used for transportation and repository disposal? Problems are revealed over time. Why use burn up credit and a French analysis now --- are we really time-proven ready for this? Isn't it “risky”??

p. 233 line 23

I would think the “misload risk analysis” sounds much more probable and dangerous than the dose risk to workers who actually do the confirmatory measurements for burnup credit. All we hear is how safely the fuel is handled etc. So why can't the measurement be done on the real thing safely so we really know underburned assemblies are not put in any cask? How safe are reactor records? People make mistakes in confirming the records without checking the real thing. I think the “misload risk analysis” should not be an option instead, but an extra safety precaution done in addition to reactor records. Safety in depth should be done in this case.

p. 236 lines 17-20

Dr. Garrick is right. The NRC needs to actually do the work here. Why depend on what we can ‘purchase from overseas’. That certainly doesn’t build up confidence to the public in the USA. If funding isn’t there – wait til it is and do it right. This is too crucial a point. Burn up credit is a big issue for storage, transport, and disposal. And I, for one, would really like to know \*more about previous missloading incidents. These dual purpose and multipurpose casks have already been on storage pads --- (1100 of them) --- some for years – what is going to be done to test the condition of the full cladding, and cask itself? The utilities main interest is getting the spent fuel off of their property. My main interest is that the oldest fuel, less radioactive and less dangerous to workers and the public, go to the transport 1<sup>st</sup>. Frankly I don’t trust fuel stored at Pt. Beach in those VSC-24 casks going on our rails and roads at all. You know, how much trust you have in the early design casks is of great concern. Those generic designs were changed constantly --- even after NRC certification. Some of the designs (not VSC-24 as I remember) (Nuholms – I think) had an issue of walls being too thin to meet NRC margins. Some were made way too close to specifications --- there were weld problems, fit up problems etc. etc. – those casks now on pads at reactors were the “guinea pigs”, and I think all the fuel in them should be put in TADS at the reactors before shipping. This is not a place to cut corners, by some sort of computer analysis, to let these assemblies go into the repository “as is” because you are afraid to look at the real thing. I’ve always objected to that as we, here in Wis. went through the mess of one of the 1<sup>st</sup> design casks and we have seen the problems. Change after change after change. Utilities don’t want to take the time or expense of loading TADS with the spent fuel stored at their reactors, but if you want this transport to work --- use TADS for everything in the system from the reactors.

p. 245 line 6

This “spread ring” is new in cask design I assume. I’ve never heard of anything like it. What is it made of? How will it react to temperature changes and radioactivity? I assume it is there to keep the space around the waste package and between the waste package canister and the inner stainless steel vessel at an even distance surrounding the inner canister. Not having the visuals and just a transcript of writing here to look at, I’m trying to figure if the ring sits on the canister, and is welded to it, and to the inner wall of outer vessel, and where. Surely it isn’t fitted to be just “between” them or it would fall into the empty space below, unless that “lifting ring” they refer to in the middle of the lid is just holding the spread ring in place by the mechanical robots using their grounding ring. How would the spread ring be kept even? Fit up here is very important. You can’t have a tilt or the weld will end up uneven. We had a lot of fit up problems with lids in our VSC-24 at Pt. Beach and it’s a mess when you’re all set to weld the lid and it doesn’t fit. How will spread rings be tested for fit up before they enter the robot chamber? It saves time if that is cleared 1<sup>st</sup>. Do you understand this procedure?

p. 247 line 2

I see that the purge port plug is “tightened”. How? Is it fitted like a screw or what? And then seal welded after testing for leaks? I don’t understand the (line 10) “controlled plasticity burnishing” process or why it is being done. I’d really be interested in seeing the visuals here. \* \*\* can you please send me a copy of the cask design and loading and

welding procedures as they are now? I'm really interested in how this all works. I'm so glad there will be ultrasonic weld testing examinations. Welds are of utmost importance!

p. 246

(sorry to go back) I see the "upper sleeve fabrication weld is performed in the shop during fabrication of waste package. Do you mean a weld between the alloy 22 and the 316 stainless steel or what? What are you calling the "sleeve"? My worry was the fit of these two materials together and expansion and contraction in repository temperatures etc. What about side seam welds of the cylinders? Is the alloy 22 fitted around the "already welded" cylinder of 316 stainless steel, or what? My understanding was that alloy 22 is not strong and has to be supported by the stainless steel --- is that correct? The crux of the whole procedure of welding all this is protection of that all important passive layer of the alloy 22. Any nick or scratches, or chemical material, or weld debris, left on that alloy 22 will cause problems in the repository later. How will it be protected from fabrication --- in fact during fabrication --- in transport to the welling facility --- and tested just before it goes into the repository? The passive layer needs to be clean. Will it? Of course the VSC-24 had to be filled with water to protect human welders, and the time limit before that water boiled was watched carefully, and then the drainage of the water out, before helium (after dryout) was all time driven. Working with robots may be better and may not be. Machines break down as we all know --- then what is done? Can a cask be safely moved into a second welding station if, "in process", the robots in the 1<sup>st</sup> one don't function right? What backup procedures are set up (in detail) in case of problems? This needs to be done before any actual casks are put in this welding mechanism.

p. 246 line 8

(14) "Stress mitigation" and "plasticity burnishing" are new to me. I know that welds were "ground down" too far in some casks so that weld thickness was lost in some cases. Can that happen? Also the weld thickness needs to remain even. How is that tested? Welds are very tricky. You can grind down a cask wall, if you go too far, and lose wall thickness too. And how will the weld material react along with alloy 22, stainless steel, and whatever the lids and port plugs are made of? What is that material? Material interaction chemically and physically is of great importance here. Any ideas for good questions from the board? (Expansion and contraction of different materials).  
NOTE: Now I just got bogged down trying to figure this cask design out without being able to see the video as you did, so I read ahead to the end of the transcript and I see you asked some of the same questions I would have. Good. \* Some of you don't seem to have a grasp of a cask design, though, and I suggest you study it -- as your technical expertise will be needed in all areas and may well apply here in the long run. Do make sure you understand the full process in detail. (The devil is in the details!). It is obvious they don't know the details yet. The talk was much like one we got at Pt. Beach when they didn't know the details of the VSC-24 handling and welding yet either. The design changed to accommodate problems. Try to diagram the whole procedure on a big piece of paper for yourself. The TAD comes out of the transport overpack or "aging" (storage) over pack at Yucca Mt. Then try to slow every detail of what happens from then until it goes into the repository. Do you understand it? If you don't, and they can't (15) explain

it to you in detail, then assume they really don't know either. We sure realized that after a while. One big concern is how things are put in place --- the cables, rings, lifting lugs, trunnions, whatever the cask design uses are always a problem. Getting them on and off --- where to put tools etc. --- look at this closely. Just how does it really work? It can all sound good on paper. But, then really try and do it! And I sure don't like them not using a full length cask at Idaho.

“OK, so after a lot of goofy explanation, it sounds like this spread ring is “one piece”, but “split” – “to overlap itself”. The terms “spring” and “sprung” were used to get the “grooves in the side of the spread ring” inserted. Its “expanded out” --- (or opened?) and the butt is not welded. About as clear as mud to me so far, but the boards questioning helped. Visuals sure would help.

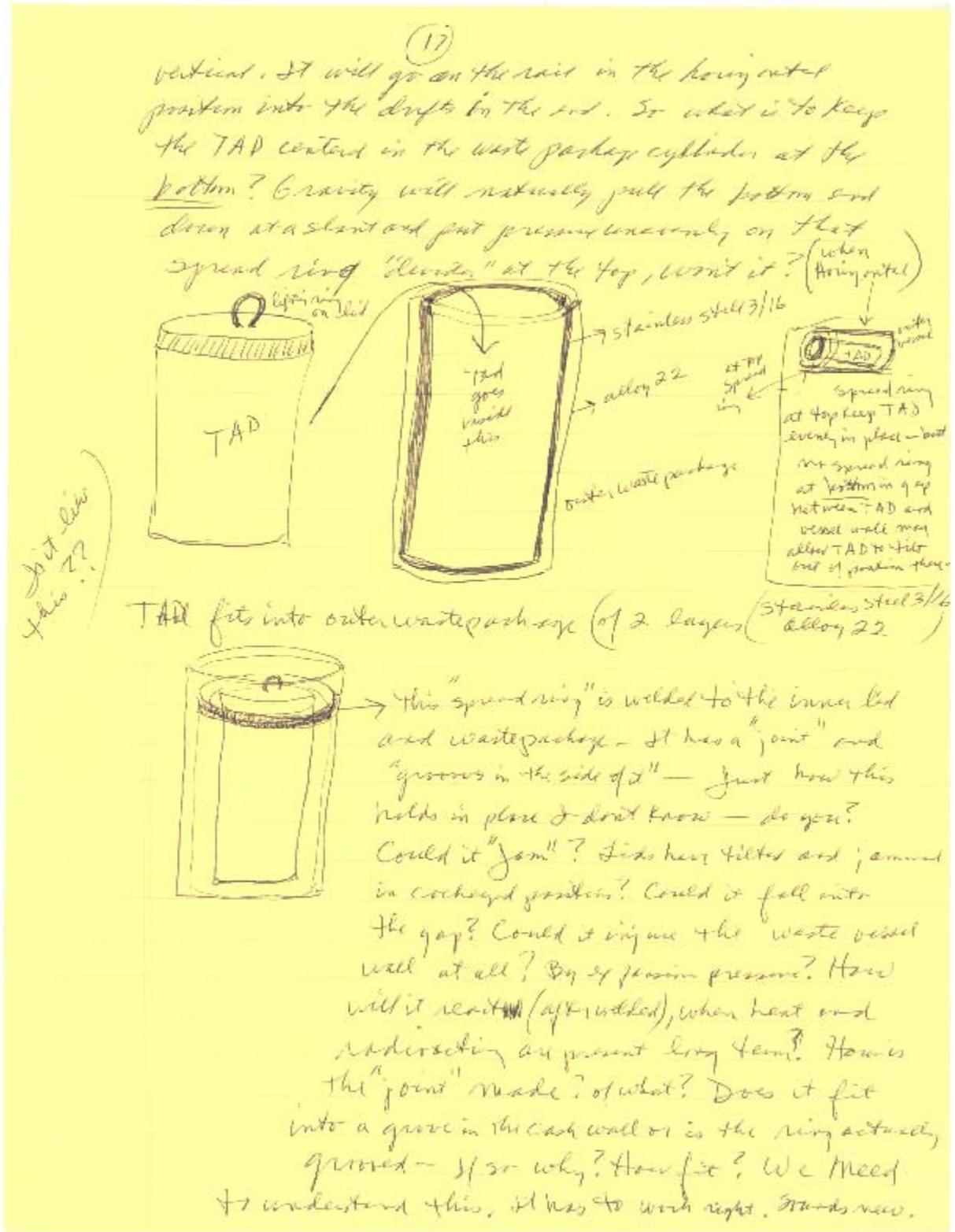
I'm trying to relate my memory of the VSC-24 closure to this process TAD welded into the waste overpack. They are different in a lot of areas.

OK --- so the TAD, with the inner lid (of the waste package) sitting on top of it, are both inside the waste package (consisting of the outer alloy 22 and inner 3/16 stainless steel). This moves into the robot room. The spread ring then is lowered (How? What tools are used and how lifted and inserted) and “sprung” into place. What place? Is it between the inner lid and the inner stainless steel wall of the designed waste package? If so, fit up is really important here as the lid/ring/must work so that the ring will be able to fit the groove. There is probably something about all this that the vendor is keeping “proprietary”. This is where you get left out in some of the major details that cause problems. Also I think they like to say it's “proprietary” when they really haven't figured it out yet. (Looks good on paper --- but doesn't really work yet.) What do you think?

p. 253 lines 3 & 4

You see here it says, “the tool used to insert the spread ring into the groove in the inner vessel is sitting on the lid.” Now 1<sup>st</sup> of all we saw on p 247 (lines 15 & 16) that “the grounding ring is attached to the lifting ring in the middle of the lids.” It's this you have to picture. There is some sort of lifting ring on each lid --- (How big? What material? Does it stay in the cask? Weight capacity? What else?) And this “insertion tool” they talk about for the spread ring sits on this lid too? So where is the tool in relation to the ring on the lid used to lift it? This lifting ring is in the middle, and I assume permanently there, so the tool cannot also sit in the middle of the lid but off to the side of the lid. So is there a problem of the tool falling into the gap between the TAD and the waste overpack cylinder? Or is it attached to a cable? Cables (can cause a mess of tangles – we know that) I assume the “grounding ring” attached to the lifting ring is either something for grinding down welds or, more likely, to lift the lid by the lifting ring? It's not clear, what is this? I picture the lifting ring as a round ring welded to the center of the lid just to lift it in place. The spread ring is a totally different thing. And I think it is used to keep that TAD centered in the outer waste package. If so, I question just this “divider” at the top of the TAD. For the TAD does not remain vertical. It will go on the rail in the horizontal position into the drifts in the end. So what is to keep the TAD centered in the waste

package cylinder at the bottom? Gravity will naturally pull the bottom end down at a slant and put pressure unevenly on that spread ring "divider" at the top, won't it? (See the following diagrams)



(middle side of upper page) (when horizontal) outer vessel spread ring at top keep TAD evenly in place – but not spread ring at bottom in gap between TAD and vessel wall may allow TAD to tilt out of position there. (insert in above diagram) TAD fits into outer waste package (of 2 layers (stainless steel 3/16 alloy 22) This ‘spread ring’ is welded to the inner lid and waste package – it has a “joint” and “grooves in the side of it” --- just how this holds in place I don’t know --- do you? Could it “jam”? Lids have tilted and jammed in cockeyed positions? Could it fall into the gap? Could it injure the waste vessel wall at all? By expansion pressure? How will it react (after welded), when heat and radioactivity are present long term? How is the ‘joint’ made? Of what? Does it fit into a groove in the cask wall or is the ring actually grooved – if so why? How fit? We need to understand this. It has to work right. Sounds new.

Ok, lets go back now --- p. 246 line 1 “the upper sleeve fabrication weld is performed in the shop during fabrication of the waste package.” So the alloy 22 and stainless steel 3/16 cylinders have already been welded together at the shop. With what material? Alloy 22 welds or stainless steel 3/16 weld? Why? Is one better than the other? Is there a gap between these 2 cylinders of different materials? Will alloy 22 expand and contract the same as the stainless steel? How tight are they together? If one expands in heat more than the other, will stresses cause the weld to crack? Ok then you have the spread ring and how its material behaves physically & chemically against the inner stainless steel wall. Stresses there? At the ring site, that won’t be the same when helium fills the gap under the ring. Pressure of the TAD against the bottom of the stainless steel wall if whole cask on its side? (Also you must also always think backwards, in case something goes wrong. How much weight could that lifting ring, on the lid, put up if the TAD had to be removed for some reason? How do you take the weld out there? Of course with our VSC-24, I only found out late in the process that they were using SHIMS for fittings, and they (SHIMS) were welded right in beside the lid, and how the heck that will all come out, if need be, I always wonder!

Side note: (I think the SHIMS were metal and needed to make it fit!)

Then you have the purge port which can be a very important little opening in that lid people tend to treat with disrespect. The “tool” is used to tighten and loosen the “purge port plug”. Is it like a screw in there? That is welded after purging and helium backfill. Then does the closure lid just sit on top of this? How? Is the lifting ring still part of the inner lid or removed somehow? If so, how do you get that inner lid out if you need to later on? Question is, what all is the closure lid sitting on? (an attached lifting ring to the center of the inner lid? A weld on the purge cap?) p. 249, line 1& 2, says “we tighten the plug, and the opening is sealed with a crushable metal gasket”. What is this? Material? How removed or used in retrieval if necessary? Do you understand this? You need to. These little things are important.

I know that ultrasonic testing had to be used on a lot of our casks with weld flaws. And it was a big problem deciding what was acceptable. Length of flaw? Depth of flaw? Width of flaw? Series of flaws together in a line treated “as one”, or what? Flaw next to

a side seam? All this can make a big difference. Then you repair a weld, and grind it down, or “burnish” it, and then do you go too far and lose some weld thickness or actual wall thickness? All important for seal closure. I really don’t understand the “stress mitigation” and “controlled plasticity burnishing”. Do you? If not, let’s get it cleared up. Are you satisfied with “non-destructive testing”? Don’t they need “destructive”? And what about distortion in quenching? Are you satisfied? These parts of a cask need to fit. Should a “narrow groove” weld be used? When heated, will roundness be maintained? Always think about what is sitting on what – where is the weight going? And what is pushing on what? Where is the stress going? A cask is a very complicated thing, and as I predicted long ago, a lot is going to depend on the cask instead of the mountain, and here we are in licensing not even knowing how a prototype will be done yet! Having seen this in the past with other cask designs, I hope the NWTRB will wait until they are completely satisfied that they understand, and see it actually being done with the real thing before they stop asking detailed questions. Believe me – the process will change as they go along. There never is a final SAR, and keeping fabrications and subcontractors “up to date” in communication on changes, causes real problems when they are in a time crunch to get the casks made in a hurry. I’ve seen this all before. And NRC allows way too much to go by without inspectors on the scene.

p. 271

Frishman comments: debris on the tracks or gantry problems – getting the drip shields really installed. Performance confirmation inspection – how to do it? And retrieval – of main importance and of the said to be “just the review of insertion” – which it certainly is not! The Swellex rock bolts and Burnold sheets are an “assumption” to hold for how long? Based on what?

p. 277

NWTRB should certainly evaluate an interim storage report as well as a 2<sup>nd</sup> repository report, and their outlook and questions on these, with the public.

So, thank you, once again, for listening, and for all your hard work on an important issue. Keep asking detailed questions!

Fawn Shillinglaw