UNITED STATES
NUCLEAR WASTE TECHNICAL REVIEW BOARD

Meeting of the Panel on the Waste Management System

THE WASTE MANAGEMENT SYSTEM:
From Waste Acceptance to Emplacement at Yucca Mountain

February 25, 2003

Best Western Tuscany Hotel and Casino
255 East Flamingo Road
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ABKOWITZ: Good morning. I'd like to welcome everybody to the Nuclear Waste Technical Review Board meeting on the Waste Management System. We're going to be looking today at waste acceptance to emplacement at Yucca Mountain. My name is not Norm Christensen, who was supposed to be chairing this session today. I am Mark Abkowitz. I'm a member of the Waste Management System Panel of the Nuclear Waste Technical Review Board. Norm is stuck in Dallas and will not be able to join us today.

Let me begin by introducing the Board members who are present here today. And I'd like to ask them to stand and just briefly acknowledge who they are as I go through this.

Dan Bullen is an Associate Professor of Mechanical Engineering at Iowa State University. His areas of expertise include performance assessment, modeling, and materials science.

Thure Cerling is a Distinguished Professor of Geology and Geophysics and a Distinguished Professor of Biology at the University of Utah in Salt Lake City. He is a
geochemist with particular expertise in applying geochemistry to a wide range of geologic, climatological, and anthropological studies.

Ron Latanision is a Professor of Materials Science, Professor of Nuclear Engineering and Director of the H.H. Ulig Corrosions Laboratory at MIT. His areas of expertise include materials processing, corrosion of metals, and other materials in different aqueous environments. Ron is also Founder and Chairman of the MIT Council on Primary and Secondary Education.

Priscilla Nelson is the Director of the Division of Civil and Mechanical Systems for the Directorate for Engineering at the National Science Foundation. Her areas of expertise include rock engineering and underground construction.

Richard Parizek is a Professor of Geology and Geoenvironmental Engineering at Penn State University. He's also President of Richard Parizek and Associates, Consulting Hydrogeologists and Environmental Geologists. His areas of expertise include hydrogeology and environmental geology.

Also to be present as soon as he arrives from Tucson is Mr. Robert Luna, who has assisted the Board in recent years in its review of the DOE's transportation activities. Mr. Luna will be serving today in the capacity as a consultant to the Board.
Finally, as I said earlier, my name is Mark Abkowitz. I'm a Professor of Civil Engineering and Management Technology at Vanderbilt University in Nashville, and also Director of the Vanderbilt Center for Environmental Management Studies. My expertise is in the areas of transportation, risk management, and risk assessment.

At our meeting today, we want to look at the entire waste management system, from waste acceptance to emplacement within a Yucca Mountain repository. Last month, at our full Board meeting, we received an overview presentation on operating the waste management system. Today, we want to take a more in-depth look at the same subject.

Our agenda contains four presentations by the U.S. Department of Energy, beginning with waste acceptance, primarily at nuclear power plants, transporting the materials to Yucca Mountain, then moving the materials through the surface facilities and finally underground for final disposal. The afternoon part of the session has been set aside to hear the views of those who might be affected by the operations of the repository and the associated transportation system.

You may have noticed in the agenda that several important organizations are not included, and that includes the U.S. Department of Transportation, the U.S. Nuclear Regulatory Commission, and others who have been involved in
spent fuel transportation for many years. The Board's charter is to review the activities of the Department of Energy. The Board is fully aware that the DOE has certain obligations regarding transportation of spent nuclear fuel, including use of transport casks that have been certified by the Nuclear Regulatory Commission. However, the Board has no responsibility or authority to review the NRC's certification process, nor does it have an oversight role regarding the Department of Transportation.

Therefore, for today's agenda, we want to concentrate on the Department of Energy, the organization we were established to oversee. At future meetings, we may invite presentations by organizations who can help us better understand regulatory and other constraints within which the DOE must develop and operate its Waste Management System. At future meetings, we also intend to hear from oversight or stakeholder groups who could not be included in today's agenda due to the time limitations.

I might add that we see this as the beginning of a process of overseeing the Waste Management System. As opposed to a special panel topic, we see this as a programmatic activity that will be engaged in for quite some time, and we plan to have some of our meetings at other parts of the United States in order to make sure that we are inclusive in that process.
I must say a few words about public comment and the ground rules of our meeting today. We have scheduled our public comment period at the end of the meeting in the late afternoon. Those wanting to comment should sign the public comment register at the check-in table in the back where Linda Coultry and Davonya Barnes are seated. That's back here to my far left. And they will be happy to assist you.

Let me point out, and I'll remind you again later, that depending on the number of people who sign up for comment, we may have to limit the amount of time that you have to make your comments during the comment period.

As always, we welcome written comments to the Board for the record. Those of you who prefer not to make oral comments or ask questions during the meeting may choose the written option at any time. We especially encourage written comments if they're more extensive, and our meeting time would not allow them to be spoken orally.

Finally, I have to offer our usual disclaimer for the record so that everybody is clear on the conduct of our meeting, and the significance of what you're hearing. Those of you who have attended our meetings before know that the Board members do not hesitate to speak their minds. When they do so, however, they are speaking on behalf of themselves, and not on behalf of the Board. When we are articulating a Board position, we will be sure to let you
1 know. You can find final Board positions in our written
2 letters and reports, which can be accessed through the
3 Board's website.
4
5 So, having those particulars out of the way, I'd
6 like to launch into our program. And our first speaker today
7 is going to be Chris Kouts, who will be talking about the
8 overall waste acceptance process.
9
10 Chris has served in various management and
11 technical positions during the more than 18 years that he has
12 served with the Office of Civilian Radioactive Waste
13 Management, otherwise known as OCRWM. In those positions, he
14 has been responsible for policy-related activities, including
15 the development of program strategic and contingency plans.
16 He also has supported interactions with Congress on policy
17 matters, has managed OCRWM's activities for transportation of
18 nuclear waste, and has been involved in interim storage of
19 commercial spent fuel. Chris will begin at the beginning of
20 this entire process, that is, waste acceptance as OCRWM views
21 the entire activity.
22
23 Chris?
24 KOUTS: Thank you, Dr. Abkowitz. Can we go to the next
25 slide, please?
26
27 With interactions with staff, my understanding is
28 that the Board was interested in a variety of topics.
29 Organization with the Office of Civilian Radioactive Waste
Management; the standard contract, and I think you had a presentation a little bit on this last month, and I'll try not to belabor that too much, but it is an important area of the waste acceptance process. It also determines requirements that we have to put into our system. There's also a request for schedules for various sources and ages of waste; condition of the waste, dry versus wet storage, damaged fuel, bare or in canister; a little bit about at-reactor cask loading; and also the differences between DOE high-level nuclear waste materials and commercial materials.

A little bit on the organization. In the west here, we have the--of course, Margaret Chu sits as director of the program. We have the Office of Repository Development, who the new Deputy Director of that is John Arthur. The Office of Project Control and Monitoring, Office of Project Support, Office of Facility Operations. The design aspects of the license application are under Joe Ziegler, who is now acting in the Office of License Application and Strategy.

In the east, we have the Office of Strategy and Program Development. Ron Milner is the Acting Deputy Director there. I am the Acting Director for the Office of Systems Analysis and Strategy Development. That's where the waste acceptance function for the system presently resides. Then we have the Office of National Transportation, which
Jeff Williams is also acting in, and he'll be giving a presentation on that.

So, the three components of the system that you're interested in here, basically waste acceptance, starts with my office, transportation, then the hand-off is to Jeff, and then it goes to Joe Ziegler's organization, who's developing the license application.

I should also note that all the acting positions you see there, as of today, all those positions will have closed and there will be decisions made about who will sit in those positions. So, hopefully, we'll have a fully staffed organization with permanent managers in place.

This is just a general schematic to show you how the system fits together. Waste acceptance occurs typically at the gate of the reactor facilities, or the DOE facilities. It is then handed off to the Transportation System, who have to get it to our surface facilities at the repository. The surface facilities then package it and, of course, it's then taken underground for disposal.

I'd like to talk a little bit about the standard contract. As I said earlier, you did have a presentation on this, but I want to go through basically what the contract is and what the purchaser's responsibilities, and also what the Department's responsibilities are under the contract.

Currently, we have 68 contracts covering nuclear
power plants, with 38 utility purchasers. We started out with 58, but with consolidation within the utility industry, the nuclear utility industry, we're now down to 38 contract holders, and that of course means that as plants were bought by different corporations, and different corporations controlled more plants, the contracts basically flow to those new organizations.

We also currently have eight contract with seven non-utility purchasers. These are mainly fuel fabricators, people like General Atomics. We have with GE, we have two contracts with GE. You're probably familiar with the GE facility in Chicago. Babcock and Wilcox has a contract, et cetera.

Simplistically, the contract defines the allocation methodology for how the acceptance rights will come into the system, the waste acceptance criteria, the scheduling and the waste acceptance procedures, the roles and responsibilities of the parties, and also the fee structure.

Starting with the purchaser's responsibilities, their number one obligation under the contract is to pay their fee, which is one mill per kilowatt hour of energy produced and sold at nuclear power plants. I won't talk about the defense side. The defense contribution is given through a different appropriation, not through the nuclear waste fund, and that, of course, has to be paid up by the
time that we begin to accept any DOE materials.

The other responsibilities under the contract for the purchaser are to provide data on the actual and projected discharges. This starts 63 months before the delivery year that we begin to accept waste, at which point we get a delivery commitment schedule that identifies the location and the range of spent fuel that we will expect to see. Then 12 months before we actually begin to take waste in that year, we have to get a final delivery commitment schedule. And then there's another step, which I'll get to in a moment.

Prior to 1998, the Department had accepted 2,900 metric tons of delivery commitment schedules as allocated in our acceptance process. The schedule of those deliveries will be dependent on the outcome of the ongoing litigation. We are involved right now in approximately 20 lawsuits with utilities. As you may be aware, the Department lost the case in terms of being in breach of the contract, and right now, we're in the damages phase. There is a possibility that we can still appeal that breach decision, and that decision has not been made. All our litigation is handled by the Justice Department.

60 days prior to delivery, Appendix F of the contract requires that we really get the specifics about what we're going to be taking in terms of the actual assemblies themselves, the year of their discharge, also their cooling
1 years, and so forth. So, it's not until actually 60 days
2 before we will pull up to the gate with a cask that we will
3 actually know what fuel we're going to be picking up. That
4 is in the hands of the purchaser.
5 Also, another responsibility of the purchaser is to
6 propose the type of cask that they want to be handled in
7 their facility, whether it's a rail cask or a truck cask.
8 And I think the Board needs to understand that DOE has no
9 responsibilities within the reactor site itself. The
10 liabilities associated with anything that goes on within
11 there are handled totally by the purchasers.
12 So, we will provide a cask and we will provide
13 training and information on how to deal with that cask and
14 any equipment. Any handling of that cask within the facility
15 is done by the utilities themselves, not the Department. The
16 Department takes title at the gate when we take possession of
17 the materials, and then go move it to our facilities.
18 Also, they package their spent nuclear fuel for
19 transportation and transfer title, which I just mentioned.
20 The Department's responsibilities under the
21 contract are to issue an annual capacity report. The last
22 one we issued was in 1995. That also provides an acceptance
23 priority ranking which lets people know at least for the
24 first ten years what our plans are in terms of taking
25 materials into the system.
The allocations are earned by the purchasers by the date that the purchaser's assembly, individual assembly, went sub-critical in the reactor. That date determines their right coming into the, or the ordering, if you will, of coming into the system.

Our responsibilities also are to provide NRC certified casks suitable for use at the purchaser's site, any procedures, any training, any technical information, special tools, equipment, and any sufficient documentation that needed on that equipment supplied. We will train their people in order to handle these casks. But, again, we will not do any of the handling ourselves.

Our other responsibilities are to accept title to the materials, transport it to our facilities, and then to dispose of it, dispose of the spent nuclear fuel and high-level waste in our facilities.

This basically gives you our estimated schedule for the acceptance of commercial nuclear materials. The little asterisk down here is very important, and you should be aware of it, that the rates in the schedule are targets only and do not create any binding legal obligation on the Department of Energy. These are our goals and what we intend to do.

Beginning in 2010, which would be 400 metric tons in 2010, 600 in 2011, 1,200 in 2012, 2,000 in 2013, and from there on about 3,000 tons per year. And that's for the statutory
1 limit on the repository, taking those materials up to 63,000  
2 metric tons of heavy metal for the commercial side.  
3 Just to give you a sense of where we are on a  
4 national basis with our present estimates of commercial spent  
5 nuclear fuel, we have 72 operating reactor sites, which  
6 comprise about 104 reactors. 14 of those reactors are shut  
7 down. As of the end of 2002, we had 47,000 metric tons of  
8 spent fuel inventory. About 43,000 are in pool storage, and  
9 about 4,000 metric tons are in dry storage. The generation  
10 rate is roughly about 2,000 metric tons per year.  
11 By the end of 2010, there will be about 64,000  
12 metric tons of inventory, 53,000 of which will be in the  
13 pools, and 11,000 of which are projected to be in dry  
14 storage.  
15 The next two slides give you a sense of what the  
16 projected age and amounts and also burn-up would be of fuels.  
17 If you look at the end of 2002, you can see that we're  
18 mainly going toward higher burn-ups, right now, 45 gigawatt  
19 days, 45,000 megawatt days.  
20 And if you flip to the next one, you'll see what  
21 happens in 2010, you'll see we're getting much high burn-up  
22 fuels, up to the 50,000 range, the average now being 50  
23 gigawatt days. So, the trend in the industry to higher burn-  
24 up fuel, which creates some issues for us in terms of actual-  
25 -the heat of the assemblies when they come out, and, of
course, the cooling time is very critical, not only for the repository, but also for our ability to move them efficiently with the spent fuel casks.

Typically, the closer you get to a five year cool fuel, the more you'll have to de-rate casks. So, it's very critical that we work with the utilities, hopefully to maximize our cask loads, and also to get the best mix we can for the repository. But we still have to operate under the confines of the contract, and as you know, we cannot make unilateral changes under the contract. We'll have to work with utilities to do this, and hopefully when the smoke clears from the ongoing litigation, we will be able to do that.

This gives you an idea of what the status of dry storage will be. There are about 23 ISFSI's, what they call independent spent fuel storage installations, in 19 states, with 4,000 metric tons at the end of 2002. We're look at about 45 of those facilities by the end of 2010.

There was some interest in what we look at as damaged spent nuclear fuel. There is no specific guidance in the contract regarding damaged fuel. We expect there's kind of a, as a guide, that we will use the same interim staff guidance that the NRC used. We will use that with the utilities to try to determine what is failed fuel, if you will, or non-standard fuel in that regard.
The typical remedy on that is to place it in some kind of a fuel can so that particulates and materials do not fall out of it. It confines any damaged spent nuclear fuel in a known volume. That means typically if you have a failed assembly, if you know it's a failed assembly, then what you need to do is to put it in a can, and that can will essentially be the same size as an assembly, so it can go into a transportation cask.

Quantities of these materials are relatively small. About 1 per cent of the historic discharges are estimated to require canisters, and I think as we move into the future, we'll see well under 1 per cent of those materials that will be quote, unquote failed.

In terms of that reactor cask loading, the Department, as I mentioned earlier, our responsibilities under the contract are to provide suitable NRC certified casks. That cask loading is performed by the purchasers. At this point, we have no plan to do any dry transfer at facilities. However, to facilitate that process, back in the Nineties, we did develop a Topical Safety Analysis Report of a dry transfer system that could be used on utility sites, or virtually at any site to transfer assemblies or potentially canisters of fuel into transportation casks. We did that in 1996. We got an assessment report back in 12/02, and we submitted our first revision to that TSAR earlier this year.
In terms of the acceptance schedule for government managed nuclear materials, at this point, we don't have any agreed upon schedule with the Office of Environmental Management. To give you a sense of what we're looking at within these. There's 7,000 metric tons that have been allocated within the first repository statutory limit. We're looking at about 2,300 metric tons of DOE spent nuclear fuel, which includes also Naval spent fuel.

We did negotiate with the Navy the acceptance of their materials. That starts with three canisters in 2010, and then ramps up, as you see there. The glass, as you see, there are about 8,315 canisters, which comprise the roughly 4,600, 4,700 rest of the metric tons of heavy metal that fall into the DOE allocation. And, again, we are going to be negotiating that with the Office of Environmental Management in the next several years in terms of what the exact acceptance schedule will be.

For those materials, the current baseline is to take all of DOE spent nuclear fuel in sealed, stainless steal canisters. This is still in our baseline. This is what we're planning, which you'll see in the license application. Navy spent nuclear fuel will be in their own multi-purpose canisters.

Formerly commercial spent nuclear fuel, we have taken certain amounts of commercial fuel mainly at the Idaho
facility. We used it for research and for various other reasons. There are about 70 metric tons of that. That will also be taken to Yucca Mountain. And the high-level waste will be vitrified, and the other high-level waste will be vitrified in borosilicate glass and enclosed in a stainless steal canister. And I think you've already seen the designs for the waste package. The co-disposal packages basically have five of these containers around a DOE spent fuel element in the middle.

It also asked about the differences between DOE materials and commercial spent nuclear fuel. Typically, there are two main commercial types, PWR and BWR, although there are variations within that. The DOE materials that come out of the weapons complex, essentially there are about 250 different types, and we categorize them in the EIS into 16 categories. So, there's a wide range of different types of spent nuclear fuel, their sizes, their weights.

The decay heat output is typically much lower than what we would expect for commercial fuel. The burnup is generally lower than we see historically and we will see in the future for commercial spent fuel. The amount of the initial enrichment ranges basically all over the map, from 1.25 per cent to greater than 90 per cent. Right now, we're looking at enrichments roughly about 4 to 4 1/2 per cent on the commercial side, going up to maybe 5 1/2 per cent. So,
the DOE spent fuel is a very wide range of enrichments.

Chemical makeup, you're also seeing a lot of different types of cladding. Uranium metal, uranium oxides are the actual materials in the assemblies. Zircaloy alloys 304 stainless, 316 stainless, aluminum, graphite, et cetera. Typically, with commercial spent fuel, you're looking at zirconium alloy for a cladding material.

That completes more or less my presentation on the waste acceptance piece of this. Jeff Williams, again, will be talking about transportation, where we take these casks, move them to our facilities, and then you'll have presentations on our surface and sub-surface designs this afternoon. And I'd be happy to answer any questions you might have.

ABKOWITZ: Chris, thank you very much. We'll now have a question and answer period involving our Board members.

Would anybody like to lead it off?

BULLEN: Bullen, Board.

Actually, I'd like to start probably with Figure 11. Actually, we're looking at the projected inventories of spent nuclear fuel that are going to be in dry storage by the end of 2010, and I guess the question that I have is that a lot of this isn't in dry storage yet. And, so, is the DOE talking to the utilities to try and see if they can get an interface, so that rather than having to accept a
canisterized dual purpose container, that they could actually
deal with what's put into dry storage? I mean, this is a
little bit of forethought, and I know it harkens back to what
might be called the multi-purpose container. But is there
any conversations that are underway along those lines?

KOUTS: Not at this point. I would also like to
emphasize the point that you're dealing with commercial
entities here who are making decisions that are really best
for their individual needs. For instance, going back to what
fuel remain in the pool, whether or not they'll keep older,
colder materials in the pool, which would I think initially
be what we would be interested in taking into the system
initially.

It's difficult when you have 38 contract holders
and 38 different perspectives, in addition to the non-utility
organizations to buy into this. I think as our plans for our
facilities get closer to what I would say a maturation stage,
and we know exactly what we want, then I think we will begin
to discuss with utilities about ways to make the system
operate more efficiently.

At this point, given the fact that we're still
developing our designs and trying to understand a little bit
more about what exactly we're doing, it's difficult to go.
In other words, you have to know exactly what you want so you
know what you have to ask for. And I think in the next few
1 years, we will be in that position.
2 I would also indicate that the Department right now
3 is in a very interesting stage in the litigation process. We
4 are, at this point, trying to determine--the courts are going
5 to determine what damages are acceptable under the contract.
6 Until that smoke clears, it's difficult for us to raise
7 these kinds of issues. But, your point is very well taken.
8 I think that's one of the things we may look at in the
9 future.
10 BULLEN: Bullen, Board.
11 Can you go back to 8 then? Because you raised the
12 issue that the contract was negotiated with the oldest fuel
13 first principle. And, so, if that's the case, can you
14 require the utilities to give you the oldest fuel first,
15 because that got them into the cue?
16 KOUTS: No. Under the contract, that creates their
17 right and their position in line. It doesn't actually
18 identify that fuel. So, the utility or the corporation that
19 owns that utility can basically chose from any of his fuel
20 pools. And as long as he meets the minimum requirements of
21 the contract, which is five year cooled, that would be
22 acceptable under the contract.
23 BULLEN: Okay.
24 KOUTS: So, we cannot at this point require the
25 utilities to give us the specific elements, because many of
those elements may indeed be in dry storage out in their fields, and it would be much easier for them to take fuel out of their pools.

So, the simple answer to your question is no, we can't require that.

BULLEN: Okay. Bullen, Board, again. Can we go to 15 then? You raised an issue that you talked about the quantities are relatively small for the damaged fuel that you may have to accept, except a lot of the high burnup fuel hasn't even been fabricated yet, let alone irradiated in a reactor. And, so, as you go to higher burnups, you get higher internal gas pressures in the fuel pins, because of fission gas production, and you get more damage to the cladding. And, so, do you think that these relatively small quantities of damaged fuel are going to be the norm, or do you think that you're going to end up with more leakers, and this will be a larger percentage than 1 per cent of the historical discharge?

KOUTS: You raise very good points. I think we'll just have to wait and see. Of course, this would be other than standard fuel under the contract. It's non-standard. So, DOE does have some, let's say, rights under the contract to say we don't want to take this now. We want to take fuel that's not damaged. So, we can defer the acceptance of those into the system to a later date.
BULLEN: Okay. Two last quick questions, Mr. Chairman.

Slide 18, please. You mentioned that you're going to canisterize all the DOE fuel, and it's going to be in the co-disposal container. I guess the question I have is how are you going to ship it? I mean, the shipping requirements for these particularly highly enriched uranium and the plutonium bearing fuels are going to have to have some sort of burnable poisons or something in their transportation casks, and I don't know of any cask that is licensed to transport sealed stainless steal containers for co-disposal. Is that a development program that you have to have underway soon?

KOUTS: Jeff will probably talk about this when he gets up. But, yes, we will have to develop casks that will take these materials, and that's something that has not been done yet.

BULLEN: Okay. Then the last one is Slide 19. You will notice that particularly for the burnups or the high fuel, you've got the future enrichments up to 5 1/2 per cent, with burnups of 57 gigawatt days per metric ton, and 62 gigawatt days per metric ton. Those are high burnup, high power fuels, and the--well, I guess I don't know the exact design or the waste package that's going to go into the mountain, but at one point, it was about 12 kilowatts per waste package, and rumor has it it may go up to about as high as
18. Is there any opportunity for you to be able to blend those high burnup fuels in your waste acceptance, not when you get it to the mountain, but in your waste acceptance, so that what gets shipped includes the high burnup as well as maybe some of the cooler fuel, so you have a chance of making the thermal waste package limits when you load?

KOUTS: Well, you'll also be limited by the cask. And I think our primary interest will be to maximize the cask loads. If you start putting higher burnup, hotter fuel into the casks, we'll probably have to de-rate the cask. Which means you'll end up having a less efficient transportation system. And, of course, we'd like to minimize shipments. So, I think the best way to handle this, my sense is, my own personal opinion is to have the capability, a greater lag capability at the repository, so we can cool those materials if necessary, and have the capability to blend them with the different heat loads of the individual assemblies.

BULLEN: Thank you. I couldn't agree with you more. I think lag storage at the facility might be a very good engineering decision. Thank you, Mr. Chairman.

ABKOWITZ: Okay, thank you, Dan. Are there other Board members that have questions at this time?

Okay, I'd like to ask a couple of questions myself, and then the Staff I know have some questions as well. This is Abkowitz, Board.
I'm a little bit concerned about the handoff points between DOE and the utilities. As I understand it, Chris, from your presentation, essentially DOE backs a truck up to the fence and says here's some empty canisters for you, and then later on--

KOUTS: Or a train.

ABKOWITZ: Or a train, yes, I understand. And then later on, you have these filled canisters that get sent, you know, the fence opens up again and you take these filled canisters and you go off with them.

To what extent is there some type of quality assurance to know exactly what you've got?

KOUTS: Well, let me try to address it this way. On the commercial side, we're dealing with commercial licensees and their records, their reactor records, in terms of the individual assemblies, and the pedigree of those records is very, very good. I think, you know, the NRC could speak to that here. But the licensees, the people who operate these reactors, have to keep very detailed records about the history of these assemblies.

So, once we have that history, we know exactly what's in that assembly. We know the burnup. We know its age. And we have a very high confidence level that that assembly is what it's intended to be. And, of course, we will possibly be observers, if you will, at the loading, we
1 will have our people involved, not actively participating in
2 doing the work, but certainly will have an interest in
3 watching these loadings and making sure that the materials
4 are indeed what they are. But my own perspective, the
5 industry knows exactly what they're doing in this regard.
6 Their records are very good, and I don't think this will be
7 an issue.
8     ABKOWITZ: Okay. So, contractually speaking, however,
9 you'd basically take what's given to you?
10     KOUTS: That's correct, following the process with the
11 delivery commitment schedule, the final delivery commitment
12 schedule, the Appendix F information. We have a paper trail,
13 if you will, so we know exactly the range, and then down to
14 the exact assemblies that we will be getting. So, we have a
15 high confidence that those materials that we will be getting
16 will indeed be what the utilities are telling us what they
17 are.
18     ABKOWITZ: Okay. Abkowitz, Board. I have one other
19 question.
20     There's been obviously some concern about 2010 on
21 the immediate horizon and how we're going to get all these
22 plans in place so that the operation can begin in a timely
23 fashion. From the waste acceptance standpoint, are there
24 issues that you're dealing with now that are on that critical
25 path? And, if so, what are they?
KOUTS: The best way to answer that I think is that I think we have plenty of time to deal with the issues that we have to deal with in waste acceptance, and I think as soon as the damages phase of the litigation is over with, I think we'll get to dealing with a lot of the other issues that will make the system more efficient. So, I don't see any outstanding issues right now that are a major problem to us accepting waste in 2010.

ABKOWITZ: Okay, thank you. The Staff has questions. Carl?

DI BELLA: Carl DiBella, Staff.

This has to do with damage to fuel, sort of. The fuel that's not damaged is the standard fuel. Is there any sort of estimate of how much of the standard, what fraction of the standard fuel will become damaged during shipment? And, is so, what's the technical basis for that estimate? And will you have facilities early in the life of the receiving facilities at the repository to accept that kind of fuel, that is, fuel that became damaged in some way during shipment?

And I understand very much if you want to leave the question off for subsequent speakers, but it's just because you brought up damaged fuel that I thought it would be worthwhile bringing it up here.

KOUTS: Typically, we would defer, if we know what
1 assembly is damaged, we would defer acceptance of that until
2 a later time in the system. But I think the simple way to
3 answer that is that the NRC, when they license our
4 facilities, they will ask us these same questions. What if
5 there is damage to an assembly in transport, how will you
6 operate your facility? So, we will have to demonstrate the
7 capability of our facilities to deal with these kinds of
8 events, and that will be part of the licensing process. So,
9 I'm sure the people who will be talking this afternoon will
10 talk more about that.

11 But these kinds of what-if scenarios are the types
12 of things that we'll have to deal with directly with the NRC
13 as to how our facilities will handle them. So, in answer to
14 your question, we will have to be able--I don't have any
15 estimates, and I haven't seen any estimates about what damage
16 might occur to these materials. My sense is that it won't be
17 very many that would be damaged, because if you were pulling
18 it out of a pool and putting it into a transportation cask,
19 you would see if there was a problem with the assembly.
20 There's not going to be a lot of, hopefully, not a lot of
21 rustling with these assemblies, or not banging them around,
22 if you will, while they're in a transportation cask.

23 But the simple answer to your question is our
24 facilities will have to be capable of dealing with any off-
25 normal event that might have occurred inside the cask during
ABKOWITZ: Dan, did you have a question?
METLAY: Dan Metlay, Board Staff.
Chris, this is sort of a two-parter relating to money. My recollection was that sometime in the mid 1980s, there was a methodology developed to allocate costs between the rate payers and the government in terms of the project. Has that methodology been updated? And, if so, what's changed?
And then the second part is, and I guess it's related, what are the project's plans with respect to doing another TSLCC and fee adequacy analysis?
KOUTS: Okay, the answer to your first question, we do keep a running tally, if you will, of the defense share, and we do keep—I don't have that estimate with me, but we do have that and keep that as a matter of our bookkeeping. And, of course, that would have to be paid up prior to the time that we begin to receive DOE materials, and the defense side is very much aware of that.
METLAY: But the methodology for keeping that tab was the one developed in the mid Eighties; is that correct? I mean, how do you know how much should go to the defense side, and how much should go to the civilian side?
KOUTS: Jeff Williams might be able to answer that for you, Dan, and I'll answer the other part of your question.
WILLIAMS: This is Jeff Williams with DOE. Yeah, the methodology has not changed, what was published in the Federal Register in 1987, I believe. Last summer, we did go through and refine how we used that methodology to get a better estimate. I think our last estimate was about 27.8 per cent DOE, and the remainder commercial.

ABKOWITZ: Any other Staff questions?

KOUTS: And let me answer Dan's second question. Our present plans are to do an update to the TSLCC potentially by the end of this fiscal year, and then we will have a new one done consistent with our design for the license application the following year. But the one we do this year will be an update to see if there are any differences that we perceived. And next year when we are going to submit the license application and have a more fine pinned design, and so forth, we will do a full TSLCC at that time and issue it, also a fee adequacy.

ABKOWITZ: Dan Fehringer?

FEHRINGER: The Board has heard several times from a certain member of the concerned public, that you plan to put classified wastes into a Yucca Mountain repository. It's been my understanding that all the wastes that will be accepted will have a lot of publicly available information about their characteristics that are relevant for understanding how the repository performs, all the
1 radiological characteristics, and so on. Is that correct?
2 Or will there be truly classified wastes about which people
3 will know essentially nothing?
4 KOUTS: The simple way for me to answer that, for
5 instance, let's talk about Naval spent fuel. We freely admit
6 there will be Naval spent fuel. The specifics about what
7 that fuel looks like, the enrichments, the size, the shape,
8 and so forth of it, much of that information is still
9 classified, and that type of information won't be there. But
10 for the purposes of the public understanding what the
11 radionuclide contents are and how they impact TSLCC and
12 whether or not those are significant issues, that information
13 will be available. But the specifics of the designs, and so
14 forth, would not be.
15 ABKOWITZ: Any other Board questions. Staff questions?
16 Okay, back to the Board. Dan Bullen?
17 BULLEN: Bullen, Board.
18 This is actually a question that was handed to us
19 by a member of the public. It may be more appropriate for
20 Jeff Williams' presentation, but since you touched upon
21 acceptance of waste at reactor sites, the question is what
22 about the percentage of waste that's going to have to be
23 shipped by barge, there will be at least some barge
24 shipments. And that wasn't necessarily mentioned, so you
25 might want to ask, the question would be about the inner-mode
1 of transfer and how does it get to the mountain, because I
don't think there's any waterways that quite make it there.

KOUTS: That's correct. But I guess there may be
opportunities across the country to barge it from an existing
reactor site to a railhead, or something like that. Right
now, the Department has no plans for barging. Jeff can speak
to this, but we would use NRC certified casks if we indeed
wanted to go that route, and those casks would have to be
placed on the barge, and of course transported and
transferred. At this point, I'm unaware of any situations
where we're planning to do that, however.

ABKOWITZ: I also have a follow-up question, Chris.
I was curious how is DOE characterizing failed fuel
for transportation and acceptance. I understand there's some
issues regarding hot spots, and perhaps the need for
repackaging.

KOUTS: I go back to the slide that I had on that. If
we determine it is--

ABKOWITZ: What slide number was that?

KOUTS: Let's see. We don't have any specific guidance
in the contract to follow. It's Page 15. I believe we will
probably follow NRC interim staff guidance for the definition
of failed fuel. But that's something we'll have to work with
with the utilities on. But that's right now the only thing
that's really out there that I think would be used as a basis
for negotiation on that issue.

ABKOWITZ: Okay. Any other Board questions at this time?

(No response.)

ABKOWITZ: Chris, thank you very much.

Before we introduce our next speaker, just a couple of housekeeping items. You all have been real good about this so far, but I know yesterday we had some incidents. If you could just remember to put your cell phones on silent mode, we would really appreciate it. I've been in meetings in the past where the house rules were that if your phone rang, you had to buy drinks for everybody afterwards. And this is a pretty large crowd, so it could be an expensive proposition.

I also wanted to acknowledge that Bob Luna has been able to join us, having finally made it from Tucson despite air transportation woes.

Our next speaker is Jeff Williams. Jeff has been with the Federal Government for over 21 years, and with the Department of Energy in the Office of Civilian Radioactive Waste Management for over 16 years. He has worked on and managed several aspects of the waste management program, including Environmental Assessments and Site Characterization Plans for potential repository sites.

He has also worked on and managed system studies
and conceptual designs for a monitored retrievable storage
facility, multi-purpose canister feasibility studies, and
conceptual designs, integration of DOE waste into the OCRWM
system, total system life-cycle cost and fee adequacy
reports, and international activities. Mr. Williams today
will summarize for us DOE's efforts to develop a
transportation plan for moving materials to a Yucca Mountain
repository.

Jeff?

WILLIAMS: Thank you. My resume is a little bit out of
date. I really have been in the government 23 years, and 18
years with DOE.

Okay, basically, what we've done in this
presentation is I first started off by looking at what you
requested, and then as we developed the presentation, we
decided not to go one by one down through the items that were
listed, but I think we address each one of them.

The one area where we may be light is the one you
brought up in your question, which is on the DOE
interrelations with DOE, other organizations. I can try and
weave some things in as we go through that.

This is a fairly complex system we're dealing with,
and we're presented with a number of challenges. We've got
72 commercial sites. We've got five DOE sites. There's many
different kinds of fuel, I think that Chris has talked about,
and there's many different interfaces. We've got funding constraints. We've got an evolving regulatory framework. We've got risk management to deal with, programmatic funding, the ability to have a railroad present, certification of new equipment. I think you brought up the DOE spent fuel in the last presentation. And there's lots of opportunities also.

We're not very far along with the transportation planning. I'm going to talk later on about our budget, and so forth. But, we're in the initial stages. I think I brought this up at the last meeting. And, so, there was a lot of work that was done between 1982 and 1995 when basically we turned the transportation program off to focus on characterizing Yucca Mountain.

So, we have a lot of historical documents, but we don't have a cost and schedule and technical baseline for the transportation program that I'm up here to defend. I think that puts us in a good position in terms of working with you guys, in that you can help us formulate a transportation program.

We have the opportunity for open and transparent communication. Our decisions can be informed, as I was just talking about, by national and international experiences. We're going to strive to be a model for safe and secure transportation, and we'll strive to be a model for successful transportation that's recognized around the world.
We basically have three actions or missions as we try to put together what we need to do for transportation. We recognize that we need to manage this program. We need to perform, and we need to communicate, all with the center goal being able to transport with public confidence. And I'm going to go through each one of these individually.

There's also many constraints that are associated between the circles here. And, like I said, I'll go through them individually. And let's go on to the first circle, which is the management of the program, which is where we are right now trying to formulate strategies, develop plans, and make informed decisions, making informed decisions I mean informed by experts on the outside, people with experience, the TRB, the ACNW, the NRC, and so forth.

Managing transportation. This year, we are working on what we call a strategic plan. I'm not sure it's a plan that's in development right now. The secretary said that we would develop this plan. This is a fairly high-level plan that's going to lay out a vision and an approach to planning, developing and operating our system. It's going to lay out the path that we'll follow. It will describe the processes that we're going to use to work closely with federal agencies and tribes. It will also describe key decision points.

One other piece of work that we've initiated this year is a transportation projection management plan. Neither
1 of these plans are operational plans that say what we're
2 going to pick up when and how it's going to be transported,
3 and so forth. The project management plan will define how
4 the project is going to realize those strategies and meet the
5 goals. It's going to describe at a high level how and when
6 transportation components would be acquired and mobilized.
7 And I'm going to go into some more details about operational
8 plans that would be developed later on.
9
10 I briefly mentioned the budget initially, and I
11 wanted to come back to that, and once again say that in 1996,
12 Congress basically directed us to focus attention on Yucca
13 Mountain, and we made a decision to stop funding
14 transportation at that time. And we had a number of people
15 working on the program, all who were laid off, contractors,
16 and so forth. We maintained a very small transportation
17 staff at DOE at the time.
18
19 In 2002, we resumed some funding of that, and we
20 have, this year in '02, we worked on $1.2 million. For '03,
21 the Secretary requested $38 million based on a $591 million
22 program. It was last week, or the week before last, the
23 Omnibus Appropriations Act was signed, and the total program
24 got $460 million. And at this point in time, we're
25 evaluating how that's going to be split out. It looks like
26 transportation program may come down to somewhere under $10
27 million for '03, which we would have to start to ramp up to
I even spend that amount of money right now. The next slide was trying to address I think the issue you asked about schedules and milestones, and as I said initially, we don't have a technical cost loaded baseline activity schedule that lays out all these things. We've got general ideas of what type of work needs to be done and when, and this is sort of just giving you an indication of some of the types of work that we envision.

We're working on the strategic plan that I mentioned before, the transportation project management plan. One of the first things you always do in a project is define requirements. We've done that in the past. They need to be looked at again. We need to develop our acquisition strategy for acquiring equipment and services. And then we also need to develop the repository receipt facilities and the interface protocols, both between the transportation system and the repository, and the transportation system and the utilities.

FY04, again, these things aren't cast in stone at all. They're just up here to give you some ideas. The first bullet, initiate cask procurements with initial priorities on long lead systems. And this addresses I think it was Dan's question about there are a number of casks that are out there that are licensed. However, there's no casks out there licensed for high-level waste or for the DOE spent fuel.
In the past, we felt the high-level waste would be a fairly simple task to modify a spent fuel cask, commercial spent fuel cask to be able to carry high-level waste glass. It's done in Europe, and so forth. However, you do bring up a good question about high enriched, the other type of fuel that does have some questions, and we have initiated a very low-level task at Oak Ridge to start to look at that sort of stuff. However, if you look at our '03, '04 budget, we do identify that we need to start procurement on long lead item casks.

We also need to update and evaluate the utility site interfaces. I'm going to talk about that in a little bit more detail. '05 and out, these are again general sort of things that need to be done. Continue the cask acquisition activities. Establish routes. Begin our 180(c) emergency preparedness grant funding. Acquire the transportation services. Acquire maintenance capabilities. And complete our operational readiness for the program.

This is a slide that comes straight out of the EIS just to show what's involved. And the EIS evaluated transportation both by what they said mostly legal weight truck or mostly rail, and this sort of shows by legal weight truck, you're coming from 72 commercial sites and five DOE sites, and it would funnel down into a repository.

If you're coming by rail, you come to rail, and I'm
going to talk a little bit about the five corridors that were also evaluated in the EIS, as well as the three heavy haul truck corridors that were evaluated in the EIS. As I think you know, Nevada doesn't have a transportation infrastructure to support transportation by rail. So, some work will need to be done to get there.

We're going to need to understand the interfaces at the sites, both at the utility sites and the DOE sites. And it's not only the site, it's also the near site characteristics around the site. For example, you mentioned barge in the last meeting. You may have a facility that has capability to life a heavy load, however, near site, they may have a bridge restriction that limits transportation to 75 tons, and you couldn't carry that large cask. So, those are some of the sites where there is barge capability, where we've identified the potential by shipping by barge.

As I mentioned before, we also have to deal with all the various types of wastes, and we don't believe that there's going to be one single way to do it. It's going to be a combination of different things, trucks, barge, rail. For the transportation mode options, in the EIS, we evaluated, as I said before, by mostly truck or mostly rail. What the mostly truck means, and people have asked, it's basically all shipments by truck except for those heavy haul situations such as the Navy casks. Mostly rail is I think it
was six reactor sites, six or eight, I don't remember exactly, would be shipping by truck, and the rest of them by rail.

Each mode has implications for supporting infrastructure needed and waste delivery schedules, including the need for intermodal facilities. You may need an intermodal facility in Nevada if you're shipping by rail, and transfer to heavy haul truck, or you may need an intermodal facility at the other end, at the utilities, if you have to pull it out by heavy haul and then transfer it to rail, or take it by barge to a railhead. And each one of these things influences the number and types of casks that are required, and we've started to look into that. And it also could impact the surface repository facilities.

I think I may have showed this slide last time. But, it basically shows the number of shipments that would be involved by shipping through the mostly rail scenario, or the mostly truck. Under the mostly rail, which was the preferred scenario identified in the EIS, it would be around 175 shipments a year, 135 by train, and 40 by truck. Well, this looks like 180. We've said 175 or so, 180 shipments, with the trains being three casks on a train.

I recently got a question, well, that doesn't make sense. The truck casks hold about 10 tons of fuel. Under that scenario, you'd say, well, that adds up to 30 tons per
train, times 135, you're getting up to around 4,000 tons of fuel. The reason why this is lower is that I think Chris mentioned cask de-rating. We also have a set of utilities where we've assumed that they have a smaller cask, like a 75 ton cask. That's another cask that hasn't been developed that potentially may need to be developed to make this system work.

The target rates, the next page, target rates for accepting spent fuel. Chris mentioned this. I won't go into it. He gave the caveat associated that this is for planning only, and doesn't obligate us.

The next slide I noticed an error in here. My slide doesn't have the error in it. It has NEPA activities, and somebody said they thought we shouldn't use acronyms, and they spelled that Nuclear Environmental Policy Act. That should be National Environmental Policy Act.

Anyway, I think I mentioned the impacts of transporting spent fuel and high-level waste were examined, both truck and rail, in the EIS. We believe that the existing NEPA documentation--I'm addressing here your question about NEPA activities that need to take place. We believe that the NEPA work that's been done is sufficient to make the decision on the mode, truck versus rail, and also the corridor in Nevada.

As we said in the EIS, the mostly rail, if the
mostly rail decision is made, then a preferred corridor in Nevada will be selected in consultation with the affected stakeholders. Once the corridor is selected, then we believe additional NEPA documentation is required. The corridors are in wide areas. In some cases, they need environmental surveys for threatening endangered species, archeological things, and so forth.

The next slide shows the potential corridors in Nevada. I'm not sure whether this has been shown to you before, but we basically evaluated five corridors ranging in length from about 300 miles, to about 100 miles. The Caliente route comes down here, and comes across over the northern side of the Test Site, and then down to Yucca Mountain. That is about 320 miles. We've estimated a cost to construct that of about $880 million. It's 92 per cent across BLM land, 5 per cent Air Force land, and less than 1 per cent private land.

The Carlin route starting up from the north here, coming down this way, down to Yucca Mountain is 323 miles long. Our estimation is about $821 million. It has more private land. It has about 7 per cent private land, again about 5 per cent Air Force, and 82 per cent BLM.

The Caliente Chalk Mountain, which was an alternative suggested during the scoping hearings, actually
is a deviation from the Caliente route, but comes across the Air Force lands to Yucca Mountain. It's a bit shorter because of that cut-through, 214 miles, estimated cost a little over $600 million. The problem is it goes through—16 per cent of the route goes across Air Force lands, and we've received several letters from the Air Force saying that this could compromise national security, and it was identified as a non-preferred route in the EIS.

Okay, the next route, the Jean route comes up from the south. Las Vegas is in here, so it's south of Las Vegas, and it's the shortest route—well, it's the second shortest, 112 miles. It would cost about $450 million. It has a two and a half mile long tunnel, and it crosses some mountainous areas.

The Valley Modified route comes off this way from the south, comes up along the Air Force base up to Yucca Mountain. That's the least expensive, only $263 million, or so. It's a 98 mile long route, and it has 53 per cent managed land by BLM, 32 per cent is DOE land already, and less than 1 per cent is private land.

Okay, we can go to the next slide now, which is the next element of the program I'd like to talk about, which is the performance, which is basically what does it take to do to make this happen. We also need to develop plans, which I'm going to talk about in some generalities.
I think I've mentioned the understanding of the interfaces. Again, this is the interfaces with the utility sites, with the DOE sites, which are less understood than the, or at least less written down than the utility sites. And then also the interfaces at the repository area. We're going to need to acquire equipment and services. We're going to need to operate this system, and we're going to need to maintain it.

Transportation planning. As I said before, we're still in the early stages on the transportation planning. We believe that we'll need to develop operational plans. We haven't started to do these. These types of things have been done with other DOE shipments. We know what's in them. We know how to do it. But they will lay out the requirements that are used to develop the details of the individual shipping campaigns. They will lay out the schedules. They will identify materials to be shipped. They will identify casks to be used, the mode, the routes, the potential routes, emergency preparedness, what we're going to do for tracking and communication.

This continues on the next slide. How we're going to coordinates with the states and localities, it will be in there. It will actually have identified points of contacts when you get down to the details. It will be based on lessons learned, and it will have any other information
that's necessary to assure safety and security. Site servicing plans is another element that I'm going to talk about in a little bit more detail. The campaign plans. It will address security. And it will address how we interact with interested parties.

We plan to work cooperatively with the states and tribes through our planning process, which has successfully been used at DOE's WIPP program. The word "protocols" down here refers to some DOE protocols that were signed by the Secretary last fall, which lay out the process by which we will do transportation and interact with the states and tribes, the affected and interested parties.

Okay, what we need to do is we need to plan. I talked about planning. We need to understand the interfaces. That's the next step. We need to evaluate the sites. In 1994, we developed what we call Site Planning Documents, and those were actually based on data that had been developed in probably 1988 through 1990, or so, and they define the site specific interfaces. The documents identify what kind of cask can be handled. They look at the transportation capability between the sites and the nearest rail. They have various routes identified in there. It has the length in there. It has things like bridge limitations. It talks about barge, if that's possible. And those documents are all on the shelves. They've been developed.
They need to be updated. Things have changed since that point in time. Chris showed you the slide about the storage at reactor sites. As many reactor sites are developing storage at their sites, they're modifying their facilities to be able to accommodate that. They may have increased their crane capacity, or what not. There may be differences in the near site infrastructure. So, that's something that needs to be done, and should be done fairly soon.

And then the next step would be developing the Site Servicing Plans. Site Servicing plans really get down into the details, talking about how each site would be serviced. Again, this is sort of what we're envisioning and how this could take place. It would establish the cask needs. It would identify the routes. It would actually identify any equipment that might be needed. It would identify who's responsible for what, types of training that's required.

Once we establish the interfaces, the next thing we need to do is go to the acceptance plan. And I think Chris covered this in detail. Basically, what I wanted to say here, though, is there's some policy decisions that need to be made that impact the various non-policy aspects, or the technical aspects of the program.

For example, let's just take one, the start-up acceptance rate, if that was something different than what we
had planned before, it would affect the cask quantities, obviously. It could affect the cost. If we buy one cask versus ten, we could get a discount on buying several of them. And it would also impact our routes. If we accepted more or less, we may use different routes.

Let's go to the next one, which is defining the cask strategy. The first thing I wanted to say is our going in planning basis is that we're going to procure existing NRC cask certified designs from private vendors. Now, I think we've identified last time, and this time, that there aren't casks available to handle all the fuel, so if we need existing casks, such as the DOE spent fuel, the DOE high-level waste, I think I talked last time about the need for higher burnup, higher enriched fuel, potentially, I also mentioned that we believe that industry will also develop those casks over the next five, ten years as they need them for their dry storage situations. However, there may be a need for some targeted casks for some specific situation with the reactor such as a smaller cask, for example.

Okay, let's go on to the next slide here. Transportation casks. These are the rail casks. I showed this to you last time. These are the rail casks that have been developed over the last five years or so, and mainly these were casks that were developed for storage. However, the industry has chosen to certify these for transportation
1 as well. So, these are the casks that are certified by the
2 industry for transportation. These are all dual purpose
3 casks. They were all designed, as Chris said, to meet their
4 specific needs with respect to, as they are making their own
5 business decisions, what was best for them. And the
6 economics of the situation has driven these to all be very
7 large casks. They're all 125 tons or more, or in that
8 ballpark.
9
10 Okay, the next slide, I showed this to you before, I just wanted to reiterate the point, though, that these are
11 the truck casks that have been developed. The NAC legal
12 weight truck cask, which is one which is being used
13 frequently by the Department for shipping research reactor
14 fuel, and so forth, there's eight of those that are built
15 right now. It only handles 1 PWR and 2 BWR commercial spent
16 fuel assemblies. The General Atomics-4 is a high efficient
17 truck cask that was primarily developed by--DOE paid for the
18 design of this, and actually GA got their certificate after
19 we stopped funding them in like 1997, or so.
20
21 We were also developing a high efficient BWR cask
22 that would carry 9 BWR assemblies, and GA didn't choose to
23 pursue that after we stopped the funding.
24
25 So, the point to be made about this is there aren't
26 a lot of truck casks available, and should we need to ship
27 more fuel by truck than the mostly rail scenario, as
indicated, then there will need to be some additional truck
cask development as well.

The next slide just gives you sort of an overview
of the acquisition strategy, and I'm going to talk more in
detail. But in the beginning stage, we do the fleet and site
planning. Then we begin with acquisition and mobilization.
Then we start mobilization, federal facility operational,
followed by operations. And I'm going to go into some more
details about that.

The next slide here, basically where this comes
from is in September this year, we put out what we call the
transportation integrating contractor scope of work. It was
a draft document. We put it out for public comment. And
these are the types of work that would be done. Right now,
we're talking about this aspect of it. In a minute, I'm
going to get to the mobilization and operations. But these
are the general types of activities that we felt a contractor
could help us do. And we would love to hear the TRB weigh in
on that. I know the comment period is over on that, but it's
something you may consider to go back and look at that and
give us comments on whether you think we've identified the
right types of work that needs to be done, and so forth.

This shows how our acquisition strategy has evolved
over time. I've sort of alluded to this, but I just wanted
to make it a little more clear.
In 1986, we developed the cask technology. We had an M&O contractor that would integrate this work. Our plans were to hire commercial transportation services, and DOE would do the maintenance. We actually had a design of a maintenance facility done by Oak Ridge in 1986, or '85, or so, and that was the strategy at that time.

We moved from '86 into the early Nineties into a multi-purpose canister approach. However, it was still generally consistent with this approach here. And then in 1996, when we got our budget cut, we decided we were going to rely on private industry to do all of this. And our first RSC, our first, our draft statement of work that was developed in 1996, basically, to make it simple, basically said we'll pay you when you deliver the waste and you figure out how to get it here. Okay, that's a little bit of over simplification, but that's kind of the basis of that.

We went through a couple mods of that, and put a little bit more DOE in it. I guess the negative reactions to that were, well, with DOE's schedule, how can the industry go out and do all this work for you in anticipation that you're going to pay us in 2010 the amount of money, and how would they finance all that work. And then there were a lot of negative comments from the non-governmental organizations about, well, why leave all that to discussions between the people that are transporting it, who would be a contractor at
that time, and the states and local tribes, why leave that to a contractor. I want to deal with DOE. So, those were some of the negative comments.

This year, in response to those, we came out with this new approach, which is the technical integration contractor, where we still plan to use industry to develop these. We're not going to go out and hire labs, and so forth, to develop these casks. But the industry has a lot of experience doing this. They've certified a lot of casks, and we plan to purchase those casks from the industry, and we will ask for them to develop casks that we think are needed that haven't been needed.

We were planning to have the transportation integration contractor integrate this work, followed by a transportation services contractor, with DOE providing maintenance. I'm going to go into a little bit more detail on this, so we can go to the next slide.

Under the cask systems acquisition approach, right now, we would procure NRC existing cask designs from private industry to the extent practicable. Existing designs may need to be enhanced. I think I've mentioned that several times, high-level waste, DOE spent fuel, possibly higher enriched, higher burnup, maybe some targeted smaller casks. I think I've covered here that the recent industry emphasis has been on the large dual-purpose rail casks, and I think I
1 also mentioned that if there was a mostly truck scenario,
2 additional technology may be needed to be developed.
3 The transportation and maintenance services
4 acquisition approach. Basically, we developed this draft,
5 Transportation Integration Contractor Scope of Work. It's
6 out on the street. In that Scope of Work, basically, the
7 transportation integration contractor would be responsible
8 for doing a lot of the planning, acquiring equipment and
9 services to support the start of waste acceptance in 2010.
10 In December, we announced that we didn't expect
11 that the RFP would be issued in '03. Basically, from a
12 funding standpoint, we were on a continuing resolution, we
13 weren't moving forward. We had received several comments on
14 that approach, so we decided we're going to pull back and not
15 work it quite as quickly. So, right now, we're still
16 continuing to evaluate that approach, and how is the best way
17 to use private industry effectively. So, that's why I said
18 this is a good point in time for TRB to weigh in, because we
19 are in I'd say a mode where we're in the development of the
20 program, and we'd like to get input.
21 Carrier selection I think was asked about. In the
22 transportation integration contractor Scope of Work, we
23 actually laid out two pieces of work. One would be for the
24 integrating contractor, and the other would be for the
25 services contractor, who would come on board later on. The
services contractor would do the transportation for us, and they would do the detailed campaign planning. They would select the appropriate mode. There may be multiple service providers that may be required. And criteria would be mode requirements, geography, quality and safety requirements.

One other thing which I didn't address specifically in here was your question about the relationships with DOE and the Navy. And with respect to the Navy, again, I don't have a slide, but the Navy will design their own casks. The Navy will ship their own casks. With EM, we will design the casks with the other part of DOE, and we will ship the casks. Actually, that's been a change in the last couple years. Initially, EM was going to design their own casks, and we were going to ship them. But we changed. The plans now are that RW will develop the casks for them, and we'll do the shipping.

The next slide is on routing. You asked about routing. We don't believe that we will be selecting the routes until three to five years prior to shipment. How it's going to be done is DOT regulations will apply. Routes will be selected to reduce time in transit. Vehicles will operate over preferred routes, which are identified by DOT as the Interstate Highway System, which includes bypasses and beltways. State or tribes may designate an alternative route in accordance with the DOT regulations.
As far as rail is concerned, there is no federal highway routing regulations, and we will follow, or our plans are to follow current DOE rail routing practices, which are to minimize time, distance, number of carriers, interchange points, and maximize use of best track.

For the EIS routes, which were identified for analysis, basically followed the two codes that came out of Oak Ridge, Highway and Interline, which follow those rules.

Transportation safety. That's one thing that you've asked about, and I think we're required to get the confidence from public that we can transport it safely. And what this slide really talks about and addresses is the record in the United States, and actually the international community as well, is that our safety record is impressive. There's been over 2,700 shipments in the U.S. during the past 30 years. 738 Naval container shipments, over 1 million miles since 1957. In France and Britain, they average about 650 shipments per year, which is nearly four times what we're anticipating under the mostly rail scenario. There's never been a release of radioactive material.

We plan to continue to review the successful shipping programs to learn anything we can from them in terms of safety, security, efficiency, and so forth. I think you know the safety criteria come out of DOT, NRC, the IAEA.

The next slide again just sort of reiterates the
type of shipments that have taken place, and I thought this was a comprehensive slide, and as I was looking at it one time right before I came up here, I noticed that the commercial shipments to West Valley aren't on here, and the commercial shipments to Morris aren't on here, nor are the ones in North and South Carolina, the Intra-Utility shipments. But this is just a listing of the other shipments. It does list the Shoreham to Limerick shipment that was done in 1994.

The next slide, I think I showed this to you before, but it also shows the basis of safety, one of the bases, it comes from the NRC requirements. And a lot of the safety requirements are based on their cask performance requirements. I don't think I need to go through the details of the tests here, but I just thought I would put that back up, and then go to the next slide, which talks about cask performance.

In the 1970s, Sandia conducted full-scale demonstrations to validate the scale modeling methods and collect quantitative data on extreme and accident conditions.

In the Eighties, the NRC Modal Study investigated protection provided against severe highway and railroad accidents. And then in 2000, NRC once again did what they called the spent nuclear fuel Risk Assessment, and they concluded that the cask would retain their integrity in more
than 99.99 per cent of the accidents. Basically, they found that the risk was small, and that it gave them confidence that the regulatory basis was adequate.

Now, NRC is planning to conduct a package performance study to re-validate their codes, models and adequacies of the regulations. They are planning, or considering, to do full-scale cask testing. They'll be holding four workshops which have been scheduled, it's up on their website, to solicit input on the testing protocols that are available. And, actually, DOE requested funds to buy equipment to support this test.

Transportation security. I think this is the one area that DOE has experience in transporting highly secure materials. We know how to do it. DOE and NRC have conducted experiments and analyses to evaluate consequences of severe accidents and postulated sabotage attacks.

Right now, DOE and NRC are participating in an international effort with the UK, Germany and France to study the effects of sabotage.

Since September 11th, government agencies, including DOE and NRC, are undertaking a top to bottom review of the security programs. We anticipate that there's going to be changes that occur before we're ready to ship, and we will do whatever is needed to comply with them or maybe even go beyond them, depending on what the situation is.
Transportation security, just to continue. The transportation planning activities, we will continue to identify measures that could afford further protection based on testing, based on our top to bottom review, based on regulatory changes that occur.

Potential measures could be armed escorts of shipments to provide continuity across state lines. Neal real-time satellite tracking will take place. Any additional barriers could potentially happen. Shipment via dedicated train is a potential.

We will develop a security plan. It won't be developed in the next year or so. We know that regulations and requirements will be changing. But one will be done. We will promise to track and communicate regarding the shipments. A system that provides continuous near real-time position tracking would be in place at all times. I think you know about TRANSCOM that's used by DOE for WIPP shipments and other shipments. We'll have something like TRANSCOM or the equivalent, something that can provide the drivers with advanced warning of poor weather conditions, congested traffic, construction zones. This is something I think is relatively simple. On my trip out here, I was notified of bad weather in Chicago, and so my plane didn't fly and I sat on the runway for two hours.

Anyway, it would also identify any unusual or
1 unexpected situations that could be encountered. If you look
2 at the TRANSCOM system, the way it's set up right now, it
3 does that. A system would allow monitoring potentially of
4 those communications by affected governments and service
5 providers, depending upon security requirements. If in the
6 event that something did occur, we would be prepared to deal
7 with the emergency.
8
9 State and tribe and local governments are
10 responsible to respond to accidents within their
11 jurisdiction. The Nuclear Waste Policy Act provides for a
12 combination of planning and training grants for the states
13 and tribes. We plan to start up that process in the five
14 year time frame before shipments begin.
15
16 Federal agencies will become involved when
17 requested by state or tribal authorities. Federal
18 Radiological Emergency Response Plan outlines each agency's
19 responsibilities.
20
21 We will maintain, and we do maintain a 24-hour on-
22 call emergency program through the eight regional
23 coordinating offices in the U.S. And then Price-Anderson is
24 also available.
25
26 The next part of the program, or the next slide,
27 deals with how we will communicate. Our intention is to
28 foster public confidence, to build working relationships, and
29 make informed decisions. We want to listen, we want to
1 understand, we want to be informed. We won't exclude people, 
2 and we'll take advantage of other people's experiences. 
3 In terms of communication, we want to inform and 
4 educate people. We also want to be informed and educated 
5 also. We want to provide opportunities for meaningful 
6 participate. We will invite open and transparent 
7 communications. We'll build on working relationships that 
8 already exist. The TEC, which is the Transportation External 
9 Coordinating Working Group, is in place. It's been in place 
10 since 1992. It provides a mechanism. We also intend to 
11 build working relationships with states, tribes and local 
12 governments, and through cooperative agreements. 
13 As I've said before, we want to make informed 
14 decisions with the input from advisory groups, as well as 
15 international experience and the industry's experience as 
16 well. 
17 The TEC group, the Transportation External Working 
18 Group, which I just mentioned, was established in 1992. It 
19 has memberships that include representatives from states, 
20 tribal organizations and local governments. The next meeting 
21 is tentatively planned for July of this year. So, the 
22 planning for that meeting is taking place right now. 
23 For the last ten years, DOE has shared information 
24 basically to ensure that participants are knowledgeable about 
25 DOE shipping practices, and to receive input on policy
decisions regarding transportation through local state and tribal jurisdictions.

Coordination with states and tribes. As I've said before, we're committed to developing a process where we will closely coordinate with the states and tribes. We will consult with the affected governments on our route selection, which we believe is in the three to five year time frame prior to initial shipments. We plan to work closely with the stakeholders on issues of public safety, emergency response preparedness. We'll communicate our transportation plans to the local governments, and we'll follow 180(c) with respect to emergency preparedness.

The cooperative agreements. We intend to develop cooperative agreements with regional, state and technical organizations. Presently, we have cooperative agreements with NCAI, which is the National Council of American Indians, NCSL, National Council of State Legislators, and NARUC, National Association of Regulatory Utility Commissioners.

We intend to establish other agreements, such as ones which we've had in the past with the Western Interstate Energy Board, the Midwestern Council of State Governments, the Northeastern Council of State Governments, and the Southern States Energy Board.

Advisory groups. Once again, we request the TRB to look at our transportation scope of work, look at our
1 presentation here, and I'm sure you won't hesitate to provide
2 input.
3
4 We've also started a risk study with the National
5 Academy of Sciences, scheduled to start in 2003. That's a
6 program that will be co-funded with NRC, DOT, and EPRI, as
7 well as international cooperation. I think I mentioned the
8 sabotage study and our continuing efforts in the
9 international area through IAEA and other areas.
10
11 As far as the future, we want to be successful, and
12 in order to be successful, we require that we ensure that the
13 transportation system is safe, it's secure and it's reliable.
14 We plan to work cooperatively with federal agencies, states,
15 tribes. We're going to build upon DOE's safety record. We
16 will use science and technology. That's one of the themes
17 that's listed in our transportation strategic plan that I
18 haven't discussed here. And I think Margaret Chu has
19 discussed quite a bit before the Board the science and
20 technology program. But to create continuous improvements in
21 the transportation system.
22
23 We plan to make informed decisions and manage
24 effectively, and our number one goal is to foster public
25 confidence and build those relationships.
26
27 As the system matures, we look forward to more
28 opportunities to communicate on the issues that I've talked
29 about today, and any others. We would welcome the input from
1 the TRB, other federal agencies, so that we can successfully
2 complete this national mission.
3
4 That completes what I had to say on transportation, and the last slide is the same one that Chris showed. Maybe
5 it's not even in here. It shows the picture of the system, and the next part of the system is the surface facility
6 design.
7
8 ABKOWITZ: Jeff, thank you very much. There's currently
9 a very comprehensive problem that you all are addressing
10 here, and there's a wealth of information that you were able
11 to share with us today. We do fortunately have an extended
12 amount of time for questions and answers, and I'm sure we'll
13 get to a lot of the material that you've presented.
14
15 I'd like to ask Board members to start the question
16 and answer period. And if you'll identify yourselves, I'll
17 try to maintain an order here. We'll start with Dan, and
18 then Ron, and then Thure.
19
20 BULLEN: Bullen, Board.
21
22 Actually, can we go to Slide 5 just to start with? Actually, these were the plans. This is the transportation
23 strategic plan and the transportation project management
24 plan.
25
26 WILLIAMS: Right.
27
28 BULLEN: When will they be done, and when will there be
drafts, and would it be possible to see these? Because these
are actually going to be key documents in the decision making process, obviously.

WILLIAMS: I think so. The strategic plan is the one that the Secretary has mentioned and has said it will be done this year. Okay? We're working on it. Since it's the Secretary's plan, it involves a lot of coordination with other parts of the program. And I'm not sure how to tell you we can interact on that, because it's sort of out of my jurisdiction.

The project management plan, we're hoping to have it done by the end of the year, or so. Like I said, we haven't had any funding. We've just recently got our funding. We're trying to prioritize the activities that we're doing. This is something that we've identified as important to be done, and we've even developed some preliminary thoughts on this in terms of meeting DOE requirements, and so forth.

It's something that I believe personally needs to be done towards the end of this year. As to whether it actually will or not, I think it remains to be seen based on once we get together, we get the details of what we're going to do with our transportation funding specifically, and where it stacks up among the number of priorities.

BULLEN: Thank you. Bullen, Board.

Can we move to Slide 7, please, Slide 7, which was
your schedule, and I was intrigued, you know, very aggressive and right on the mark. The question that I have, and it's not up here, is Chris Kouts mentioned the fact that you can't really talk to the utilities because of the impending litigation. Can I imply here that maybe you hope the litigation is sort of done by 2004, because you're going to be able to re-establish that dialogue with the utilities to refine these planning operations? Or how does litigation impact these?

WILLIAMS: I think that's subject to further discussion. I mean, this is something that we think is important and would like to do. And, again, I can't really give you any specifics.

BULLEN: That's fine. I just wanted to raise that issue. And if you move on to 12, Slide 12, I guess the question that I have, this is the mostly rail decision is made, if it's made. I think Margaret Chu at the Institution of Nuclear Materials Management meeting in January in Washington, D.C. said that a record of decision is pending. Can you comment on when that decision might be made? And I'm assuming that you're going to decide openly and in public that it's going to be probably mostly rail, and you're going to tell us how that happens. But, do you know anything about the record of decision, or am I putting you too much on the spot?
WILLIAMS: You're putting me on the spot. I guess what I'd like to say is it's under discussion, it's under evaluation, and I can't really give you any more than that. I'm sorry.

BULLEN: Your crystal ball doesn't tell you that it's going to be like the week after next?

WILLIAMS: No, it doesn't.

BULLEN: Okay, thank you. But I just wanted to reiterate that that's something that will have to be made. And I guess that leads into the sort of route selection issues that will have to be addressed shortly thereafter.

Now, I want to actually move onto something that's maybe a little bit more tenuous here. I guess let's go to Slide 15. This might not be the one I wanted. How about 17? I'm sorry. when you get to the point where you're taking a look at these site planning documents for specific site interfaces and you take a look at cask handling and transportation capabilities within the sites, and then you get down to the site servicing plans, correct me if I'm wrong, but that's going to provide a lot of information for potential attacks on transportation systems, and so how do you balance the safety and security of, you know, Homeland Security with the need to inform the public of the things that you're doing?

WILLIAMS: That's a good point, and you could ask the
same thing about routes, you know, and I think that's something that's going to need to be worked on over the next several years. As I said before, we don't have all the answers today. These are things that we've identified in the past that need to be done. The new security view of the world is going to impact how we develop the things. It's actually impacted things that we've had upon the web today. I think you may have noticed things were pulled off the web and reviewed, and so forth.

So, all of those things are going to need to be looked at specifically. I mean, there's some people that say you shouldn't tell anybody when you're going anywhere, anytime. And then you have the other extreme. And those are going to be balancing acts that are going to have to require coordination with NRC, maybe the Department of Homeland Security, and so forth. So, I don't really have the answer to that, again, but I know it's something that needs to be developed.

BULLEN: Bullen, Board. Just two quick more questions, and then I'll be done.

Figure 25, please. I know you didn't ask--well, you have to realize that this is a Bullen, Board comment and not a Nuclear Waste Technical Review Board comment. But my comment is on your transportation integration contractor, and what I wrote down in my notes here is that I think it's a
1 really good idea for DOE not to re-invent the wheel, and
2 there was no pun intended there. You've got to let industry
3 with their experience in shipping and, you know, rail
4 structure, and all that sort of stuff, do the bulk of the
5 work.
6  Mistakes in the past are good to learn from, and
7 that reasonable servicing contractor is sort of a good
8 indication that there's a great intention to go ahead and let
9 this be privatized, but the ability of industry to step in
10 and do it wasn't there because of the impending schedule
11 delays, and the like. So, I want to just comment that I feel
12 that the transportation integration contract that you've
13 identified there is a good way to step up, particularly in
14 light of the fact that you're going to provide the purchasing
15 power for the industry, and then you're going to let industry
16 coordinate how it gets done, because I think there are people
17 that know how to do that, and you don't have to re-invent the
18 wheel.
19  Finally, and my last question, and that was just a
20 comment, you don't have to respond to that one.
21   WILLIAMS:  I like that one.
22   BULLEN:  Finally, my last comment is on Figure 40, and
23 it's just a question. You've had this Transportation
24 External Coordination Working Group for 11 years now, or
25 going on 11 years. Is there anybody from the State of Nevada
that's on that?

WILLIAMS: I believe they are. To tell you the truth, I haven't been involved in that. I don't know, I'm guessing if I answer the question.

BULLEN: Someone says yes, so that answers my question. Bob, do you want to just lean forward and identify yourself, and answer my question for me?

LUNA: My name is Bob Luna, consultant to the Board, and I've followed the TEC activities over the past several years, and there have been attendees from the State of Nevada to many of those meetings, but not all.

BULLEN: Mr. Chairman, that concludes my questions. Thank you.

ABKOWITZ: Thank you, Dan. And, as always, you have an opportunity to ask some more as the deliberations continue. I've got Ron, who will be up next, and he'll be followed by Thure, Priscilla and Dick. That's the order we have right now. Ron?

LATANISION: Latanision, Board.

Could you describe to me what an NRC certified cask looks like in terms of materials of construction or fabrication, just in general? I'm on a bit of a learning curve, I have to tell you, and I really don't have much experience.

WILLIAMS: Sure. Bob could do it in great detail. But
they are made out of steel. Okay? It could be, if it's a
track cask, it would be maybe on this order diameter, with
spent fuel assemblies about this size square, length maybe 20
feet. You tell me if I'm way off. Okay? If I'm in the
ballpark, okay. It will have a containment inner shell that
will be a welded steel material. In the GA-4, 9, we actually
have a square design for our truck cask. I should say we.
It's GA's design, which has a metal called XM-19. But the
primary purpose is to contain material.

Around that, you have the shielding material. You
need the gamma and neutron shield material. And in the GA-4,
we're using depleted uranium, and I can't remember what the
neutron shield is right now, plastic boral, or not boral, but
plastic polymer sort of thing. And then they also have large
impact limiters on the ends which basically are used to
reduce the stress in an accident situation.

The rail casks are--I guess I should have brought
pictures. I didn't think to go to that level in this
presentation. But the rail casks are 125 tons. They'll sit
on a large flatbed car. The flatbed car may be lower in the
middle because of the weight to distribute it. They'll hold
anywhere--well, some of the rail casks called the IF-300 only
held seven or eight assemblies, something like that, ten, and
it weighed on the order of 75 tons, or so.

The ones that are being designed today hold 21 to
1 as many as 68 BWR assemblies, the ones that are smaller, and
2 they weigh I said on the order of 125 tons. They sit on the
3 rail cask in a horizontal fashion. Actually, the Navy's
4 casks sit vertically. Okay? They're a little different.
5 They're also heavier. But primarily they need to contain it
6 with some sort of welded inner containment of shielding and
7 impact limiters.
8
9 Did I leave anything out, Bob? No?

LATANISION: Latanision, Board.

10 Is GA at this point the sole supplier, provider?
11 WILLIAMS: No, General Atomics is the--well, why don't
12 you put up the one on rail casks. General Atomics has a
13 certified design for a truck cask, and their certified design
14 is for a four PWR assembly truck cask. So, it's what we call
15 a high efficient truck cask.
16
17 To be a legal weight truck, it has to be under 25
18 tons. Okay? The GA-4 cask, when it was developed, basically
19 we were trying to fit in as many assemblies as we could and
20 still keep it--go to the next one on truck casks. Okay,
21 these are the truck casks. These are legal weight truck
22 casks that could be shipped by a truck. NAC, this is Nuclear
23 Assurance Corporation, they have a certified cask. They've
24 built eight of them, and they're used around the world for
25 various different things, research reactor fuel, commercial
26 fuel, and so forth. It has the capability to handle short
cooled fuel, two year cooled both P and BWR fuel, but it does weigh on the order of 25 tons.

The General Atomics casks, which are casks that were developed by our program, they're certified, none of them built. We built a half scale prototype in 1992, or so. Drop tests were done of that cask, and it's a complex design. It has this XM-19 material that needs to be done in a square fashion. It's has depleted uranium shielding, and it's not a simple design. But we're trying to push the envelope in terms of carrying the maximum amount of fuel it could in order to reduce shipments.

So, you can see if there's 300,000 assemblies that need to be shipped, you would need a bunch of NAC casks, and four times fewer General Atomics casks.

If you go back one, these are rail casks that have been developed. And these are all fairly recent. I'm not sure why they don't have some of the IF-300 on here. Actually, IF-300 is an older cask that's been used in the utility for most of the shipments today. My understanding is that it doesn't meet the current NRC regulations, and can't be reproduced. But they do allow it to be used for shipments today.

For example, the Shoreham to Limerick shipment in 1994 used that IF-300 cask. Now, these vendors here, Transnuclear, HOLTEC, Nuclear Assurance Corporation, BNFL,
they've also designed and built these large rail casks. These are dual purpose casks in that they're certified for storage, and they're certified for transportation. The primary driver behind building these was for storage. They were needed at the reactor sites to store their spent fuel because they were running out of room in the spent fuel pools. So, these were geared towards the storage thing, the storage need, but they were also certified for transportation in order to ease the removal of the fuel from the utility site.

Now, like I said, these are not covered by the utility contract that Chris talked about. Okay? The utility contract doesn't say--all it says is we're going to accept fuel that's this shape, this long, and so forth, and so on. It doesn't address any of these things, because they weren't known in 1982.

LATANISION: Thank you. If we could turn to Number 16, Slide Number 16? You mentioned successful experience in the WIPP communication process. Could you talk a bit about that? Is it basically the same, oriented in the same way as your description of what you would envision doing?

WILLIAMS: I think so.

LATANISION: What was the key to success in that instance?

WILLIAMS: Well, as I understand it, and I'm not
involved on a day to day basis on the WIPP program. What I understand is that they took a proactive view in going out and talking to the states. When they identified we need to ship from here to here, they identified who they were going to talk to, how they were going to talk to. They started the discussions with them early on. And, within discussions within the program, we've heard people say, well, you ought to follow the WIPP model. And that's the sort of thing that they're talking about, as well as the tracking, and so forth. And I think I'll leave it at that.

LATANISION: Thank you.

ABKOWITZ: Thank you, Ron. Thure?

CERLING: Just some more questions on the casks.

Cerling, Board. Just some more questions on the cask situation. I was wondering, one, at present, are the casks that are designed, are they presently suitable for all spent nuclear fuel?

WILLIAMS: No, they're not. I showed at the last Board meeting, I plotted all the fuel that was out there in terms of burnup and age, and so forth. If you flip back to the rail cask one, for example, it will show you the types of fuel, which I don't know that I can read here, but PWR 15 by 15 assemblies, 3.3 per cent enriched, and so forth, and their cooling time. Anyway, what I did was I plotted on a plot all the spent fuel assemblies and where they would be in 2010.
And based on that estimation, we said that--or I said that this set of casks could handle about 60 to 65 per cent of the fuel, I think is what I said at that time. There will be higher enriched, higher burnup fuel that will be generated, and is being generated by the utilities today, and these cask designs will need to be updated.

And what I said was that we believe that the industry on their own is going to need to make modifications to these casks to accommodate that fuel because of their needs at the reactor site to start to store some of that higher enriched fuel.

Now, one other aspect, like I also said, these are very large, too, and there may be a need for some smaller casks in some specific incidents. In the '94, '95 time frame, we identified about 14 utilities that would be best served by a 75 ton cask. That needs to be re-evaluated today based on their situation, their near site infrastructure, and so forth.

CERLING: And then following on that, again just because I'm on a learning curve, how long do you anticipate each cask and how many shipments is each cask used for?

WILLIAMS: Their certification life is five years. I think we've used the design life in our estimation of about 20 years. I think that's what we've used in our TSLCC projections to say when we need to start replacing those
1 casks, a 20 year life.
2 CERLING: And then another question that has to do with
3 the transportation issue. Is it possible, or do you see that
4 it's possible, that the decision for mostly rail may take
5 long enough that you may have to have a system that begins as
6 mostly truck and ends up as mostly rail, and how does that
7 affect cask procurement and design and so on?
8 WILLIAMS: Yeah, I was kind of alluding to that. You
9 know, when we're talking about risk management, in terms of
10 managing the risk of the program, that's something that I
11 think you need to think about, and we need to be thinking
12 about those decisions today and plot out exactly what needs
13 to be done. And if we plan our program on nothing but rail,
14 assuming that the decision is going to be made, the railroad
15 is going to built, everything is going to be all lined up to
16 receive by rail in 2010, we may not be in a position to
17 accept all the fuel that we want to.
18 So, we need to be thinking about that, and we are,
19 and I just can't tell you exactly when these decisions will
20 be made. You know, I point this out in the lack of truck
21 cask development, that that's something we need to look at.
22 ABKOWITZ: Thank you, Thure. I just want to make a
23 personal comment to you. I think you have a better chance of
24 becoming a transportation professional, based on those
25 questions, than I do a seismologist, based on my questions
1 from yesterday.
2 
3 Priscilla, you have the floor.
4 
5 NELSON: Well, we'll see how far I can go with this.
6 Nelson, Board.
7 
8 My question has to do with the idea of safety and
9 integrated safety. And the experience that I've had with
10 safety makes me a little bit concerned about the variety of
11 organizations that you have potentially involved in achieving
12 a safe system, including DOE, the Technical Integration
13 Contractor, the Technical Services Contractor, other federal
14 agencies, state agencies, local organizations. There's an
15 awful lot of variety and interfaces throughout that system.
16 
17 So, the idea of developing an integrated concept of
18 how safety is to be achieved and how all the way from route
19 selection, which seems, for example, on Slide 29, to under-
20 accent safety in selection of routes. Although it may be
21 embedded in the bullets that you have there, it's not overt
22 as a prime issue, a prime criterion. And certainly standard
23 emergency response varies widely across states and local
24 communities, and there's, as we're learning I think following
25 911, a lot of turnover in emergency responders, and many of
26 them have compound responsibilities, as they respond to more
27 than one kind of emergency, or have more than one duty that
28 they may be called to act simultaneously regarding.
29 
30 So, I guess the basic--plus the different casks
that are possible, and the options that are open. So, I'm wondering is there a plan to develop an integrated safety construct for the project that puts safety as the number one priority and improving safety the long-term goal? It's almost a philosophy to go about it, and it may be removed from the technical aspects, which are easier to concentrate on in many respects, but it seems like this is the time when that sort of philosophy could get developed and the content established.

That's probably very uncomfortable for you, but if you have any input, I would appreciate hearing.

WILLIAMS: Okay, you said a lot of things there. Let's go to the very first slide, well, mine is Page 4. It might be Page 3 on yours, the circles. You know, I think what this is trying to address is that this is an integrated process. There are a lot of people involved, and our number one priority is safety. And it's to transport with public confidence, and to get that public confidence, you've got to be able to show that you can do it safely.

NELSON: I just don't--the word safety is not on that slide.

WILLIAMS: Well, it's in my notes. It's not in there anywhere, is it. Well, I guess it goes without saying, you know, it's so paramount in your thinking that, you know, it overrides the whole program. Safety is the number one
1 concern, that in order to get the public confidence, you have
2 to show that it can be done safely.
3 And I guess, you know, all I can say is that, you
4 know, whereas I've said before, we're in the near term, just
5 beginning to formulate the over plans, and so forth. You
6 mentioned routes, for example, the regulations that are
7 developed for the routes, basically, the assumption is that
8 those are the regulations that are based on safety
9 considerations.
10 Interstate highways are better than taking back
11 roads. Beltways are better than driving through the cities.
12 Best track is better than worst track. Minimizing exchanges
13 is better than maximizing exchanges. So, those are the types
14 of things that are built into the regulations. The cask
15 safety standards that NRC has built are all based around
16 safety.
17 And I guess I could say in that the shipments that
18 have taken place around the world, they've used many a
19 variety of different casks, and used many a variety of
20 different organizations to do these things, and our system,
21 our plan is to build--to buy a safe certified cask that meets
22 the NRC regulations, hire a contractor that has the
23 capability that meets the training requirements to do that,
24 and then to discuss this with the various affected parties,
25 and so forth. That's my best shot at trying to respond to
1 what you said.
2 NELSON: And I didn't expect a black and white response. It just seems that now as the program is turning to transportation, the issue of safety is very important, and clarity about the safety construct is really important. And I have no doubt that it does permeate what you have planned, but it seems to me that it can be up front and integrating. And with so many agencies involved, so many entities involved in some aspect of safety, clarity is really important.
3 ABKOWITZ: Okay, thank you, Priscilla.
4 Dick will be next, and then I have some questions, and then we have Ron with some followup questions, and Carl from the Board Staff. That's the order I've got. Dick?
5 PARIZEK: Parizek, Board.
6 Picking up on the safety issue, on Slide 13, yesterday we went through seismic discussions big time, do any of these routes have different seismic risks that might, well, again, during an earthquake, you can say I don't necessarily have to ship, but then there might be repair, and so on, but does that factor in the environment statement? I don't remember, and so I'm just asking about seismic hazard. If you look at the map where the active faults are, these routes cross some, some more so than others.
7 WILLIAMS: I don't know the answer to that. If Bob or Pam, did you hear his question? I just wanted to know if any
1 of the routes have different seismic risks, basically, I 2 guess is what the question was.
3 ADAMSON: I'm Pam Adamson of Fusile and Hamilton. In 4 the initial studies that were done for selecting or paring 5 down to these five corridors that were analyzed in the EIS, 6 initial evaluations were done on a very broad spectrum, but 7 specific seismic analysis would be part of the design of the 8 actual track alignment, and it would be done after a corridor 9 is selected.
10 PARIZEK: It's a little different than, say, terrorism, 11 because terrorism, whatever it is, where seismic events, you 12 know you had one, you can then I guess do something. But 13 there's a delay in terms of shipping, what you do in the 14 interim.
15 On Page 33, there's a discussion in 2000 about 16 NRC's CR-6672 concluded that casks would retain their 17 integrity in more than 99.99 per cent of accidents. That's, 18 again, sort of a--it seems like a low risk, successful 19 statement, but what does that mean to the public? If it 20 isn't 100 per cent, then there could be an accident. If the 21 accident is in the wrong place, what kind os releases are 22 possible?
23 WILLIAMS: Once again, I think the risks were in the EIS 24 and they postulated the potential impacts in a populated 25 area, and Pam might be the best one. Do you know the answer
1 to that at all?
2 ADAMSON: I'm sorry. I'm having a hard time hearing
3 back here.
4 PARIZEK: The question had to do with that 99.99 per
5 cent containment in case of accidents for the shipping casks.
6 I just want to get a better feeling of what the risks would
7 be to the public if you had an accident and you didn't have
8 100 per cent containment, then what?
9 ADAMSON: In the environmental impact statement, we
10 looked at a maximally reasonable foreseeable accident, and it
11 was based on NRC studies. I'm sure there's experts in the
12 crowd that could answer this more completely. But you take a
13 combination of different types of accidents and do a risk
14 analysis on them.
15 PARIZEK: Okay, thank you.
16 ADAMSON: And I'll be glad to speak with you afterwards
17 if you'd like more information.
18 PARIZEK: I guess one of the persons on precarious rocks
19 that was here yesterday might know more specifically about
20 these rocks, with regard to whether he has seismicity
21 information, if he cares to comment, maybe that's something
22 that could be added.
23 I have some other questions about how transferrable
24 is the WIPP experience in developing transportation planning,
25 other than the issues you talked about being proactive, you
1 know, being aggressive in terms of meeting with the people, 
2 and so on. But the whole program is working, and can you 
3 borrow and what can you borrow from their working experience 
4 to help expedite your own planning process? 
5 WILLIAMS: There are some differences, in that their 
6 True Packs weren't already certified by the industry, for 
7 example, and so that's something that was basically a 
8 government program with Westinghouse, the DOE, M&O 
9 contractor. So, that is one difference. Okay? But in terms 
10 of driver training, the TRANSCOM aspect, as I said, the 
11 outreach aspect, the discussions with states and tribes, I 
12 think that's the aspect of it that's transferrable. 
13 But the whole program in general is somewhat 
14 different, because of their design, their standard True 
15 Packs, and so forth. If we were developing this program in 
16 1982, or something, it may be a different situation. But 
17 today, you know, you don't have private industry out there 
18 building True Packs, and so forth. So that aspect, we are a 
19 little bit different. Okay? 
20 PARIZEK: 99 per cent is interesting. I guess we have 
21 an answer maybe. 
22 BLOOMER: Tammy Bloomer, NRC, and I'm not a 
23 transportation expert with NRC, but I have sat in in enough 
24 of the issues, the 99.99 per cent of accidents was based on 
25 the proposed list of risk significant accidents, and they're
not realistic accidents. They're speeding cars of 237 miles
an hour, those kinds of accidents, and that's where the 99.99
per cent of accidents came from. To date, we've had no
releases under any accident scenarios, and they have had
accidents. So, that 99.99 per cent is based on the proposed
worst case scenarios, which are generally out of the league
of realism.

PARIZEK: Okay, thank you.

You made mention about three casks per train versus
a dedicated train. What's the difference? A dedicated train
would have many more than three casks, or three casks and you
just throw them on a train and go?

WILLIAMS: Well, what I've said is our planning basis
has had to be three casks on a train, whether it would be a
dedicated train or whether it would be three casks on a
commercial train. There hasn't been a decision made on
dedicated train. We don't believe that we need to make that
decision today. There's pros and cons against it. But,
basically, the three casks per train was just to show that
when we say 145 shipments or 140 shipments by train per year,
what it meant was there's a train with three casks on it.
Okay? And if it was coming into Nevada, by that point in
time, it would have to be a short line train. We wouldn't
have a train with lots of other things on it.

PARIZEK: One other question then about ramping up with
people. If you get the funding that you've asked for, that's
a huge ramping up, and then the staffing and all of this, can
you meet the schedules that you've outlined for us, given the
fact that you would hire a whole bunch of people, come up to
speed and figure out what they're doing, and, you know, it
takes a while. And, so, is there a people pool out there?
WILLIAMS: Well, it's a challenge, and, I mean, the
government personnel are the people to manage to contractors,
and so forth. We know that the industry has a set of capable
people that already are out there that know how to do this
kind of transportation. Those are the kinds of people that
could come in. We've been inundated with people that want to
come work for us. Every day, we have a new group of people
that want to come that tells us how best to do this. It
would be nice if we had an independent view from someone who
is not trying to get work.
PARIZEK: It doesn't mean they're necessarily
qualified--
WILLIAMS: Right.
PARIZEK: Thank you.
ABKOWITZ: All right, thank you, Dick. I'm going to
defer to Ron here, and then the order after Ron will be
myself, Carl and Bob.
LATANISION: Latanision, Board.
Just the corollary to Dick's question and mine
earlier about WIPP. What about international experience?

What have we learned in terms of the interaction with the public and the kinds of issues that were just raised from our international colleagues?

WILLIAMS: Well, we know that there's been a lot of shipments going on internationally. We know they haven't all gone well. We've known that people in Germany have tied themselves to the railroad tracks to stop transport. We know that Greenpeace has chased boats around England, and so forth. But we also know what's going on in terms of transportation there. We interact with those people. As a matter of fact, we had a contractor develop a report on international transportation experience.

I think what we've learned in this country is that once you have a designated state person that is designated by the governor to deal with transportation, and they understand it, then they become your ally, or I should say your ally, they become educated and informed, and they can help our process. So, that primarily is our approach, is to once people understand this, they understand the risk, they understand the robustness of the cask, they understand the past safety record of the program. As we said, from NRC, there's never been a release of radiation. There's been only eight accidents ever in this country. Four of them were with empty shipments.
Anyway, I think that once that's understood, that people can be comfortable with shipment of this solid material in robust casks that are well contained.

ABKOWITZ: Thank you, Ron. Abkowitz, Board. I'd like to turn to Slide, please. You mentioned the strategic plan was coming out this year. I just wanted some clarification. Are we talking fiscal year or calendar year?

WILLIAMS: Well, we hope this fiscal year.

ABKOWITZ: Okay. And I believe in the presentation that Chris made, the position of managing this transportation activity at DOE headquarters is actually a position that you are acting in right now?

WILLIAMS: Yes.

ABKOWITZ: When is a permanent decision going to be made in terms of who will be running that program?

WILLIAMS: My guess would be in the next couple months.

ABKOWITZ: So, we're bringing in somebody who is going to be basically the CEO of this activity and the strategic plan will be coming out a couple months after they arrive?

WILLIAMS: Potentially.

ABKOWITZ: Does that strike you as odd?

WILLIAMS: Never thought about that. I mean, hopefully the person that will be brought in would be knowledgeable and comfortable with this, and would have to come on board. And
1 as I said, this is also, it's a Secretarial level plan, and
2 basically what the Secretary has said is that he requested
3 money in '03 to do this plan, in fiscal year '03 to do it.
4 ABKOWITZ: So, the implication then is that person
5 that's going to be in charge of this operation has little to
6 no input in the strategic plan?
7 WILLIAMS: Well, I guess it depends who's selected for
8 the job. You know, if--I don't know how to answer that.
9 ABKOWITZ: I understand. I didn't mean to put you in an
10 awkward place either. But I did want to note that for the
11 record.
12 Secondly, I found it very interesting that the
13 strategic plan is going to describe the process for how
14 you're going to interact with everybody else. Could you
15 explain to me whether or not the strategic plan has any kind
16 of stakeholder interaction with external parties, or whether
17 this is being developed entirely from an internal
18 perspective?
19 WILLIAMS: Well, that decision hasn't been made yet.
20 So, that's all I can say. To date, you know, we've been
21 struggling with what is this plan. Is it an operations plan?
22 Is it a higher level plan? And, you know, internally in DOE
23 we've been struggling with what this plan is, and we haven't
24 gotten to a point where it has gone external yet, and I can't
25 answer your question on where and when that will happen.
ABKOWITZ: So, you have a strategic plan that's going to be published in the next four to five months that's going to be implemented in a position where a permanent decision hasn't been made, and there's been no external interaction with any of the parties at the strategic level? That sounds to me like if you're trying to build public confidence, you're not off to a very good start.

WILLIAMS: Well, I would say that the strategic plan right now is envisioned more as a promise as to how we're going to work with you in the future. Okay? And the process to cooperatively work with these other agencies is something that DOE has already been doing, and the things that I described, we have these regional cooperative groups. We do intend to issue grants with these cooperative groups. We do plan to work through the Technical External Coordinating Working Group. So, the things that are already going on in the Department that RW really hasn't been involved in in the last several years, we will describe that this is our intent to do this.

ABKOWITZ: Okay. My experience is that operational plans flow from strategic plans, and if you really want to convince the public that they're engaged in this thing and have some ownership over it, that before the strategic planning process goes much further, that a genuine effort be made to engage in stakeholders outside of the organization.
If we could move now to Slide Number 39? You mentioned fostering public confidence. I think it's important to make a distinction between building confidence and trying to restore confidence, and it's my perception that DOE is in the situation where they have to restore confidence because there is a history that dates back I think probably even before your arrival in the agency, and as a result of that, I would just sort of emphasize that rebuilding public confidence is a much longer and more painstaking process than building public confidence from scratch, because there is an a priori perception that has to be dealt with.

So, the reason I'm making that point is that I think the time frame for the planning process and some of the other things that need to be done is going to be elongated because of that concern, and it's all the more reason why interaction with external stakeholders is, in my opinion, on the critical path.

If we could move now to Slide Number 40? I was the Chairman of the Transportation Research Board Hazardous Materials Committee from 1990 to 1996, and as a result of being in that position, I had a seat on the Transportation External Coordinating Working Group Committee, and I had an opportunity to attend several of the meetings. And I think that it's my opinion that if this group is still intact, it has been at least during my tenure a very under utilized
The meetings I went to had a very impressive list of stakeholders. But as far as I could tell, most of the agenda at most of the meetings was a case of DOE sharing information on whatever they were doing at the time, and I never got the impression that there was a serious genuine interest in two-way feedback, and that that feedback was actually being openly used in the process thereafter.

I do know that there were subcommittees that were charged to do certain things, but it seemed to me the way they were actually operated, that they were not achieving their mission. So, again, I haven't been engaged in that process for the last several years, but I think it's important for this External Coordinating Group to again be empowered to provide some input and have a sense of ownership over this process.

WILLIAMS: I think that's a good point. And as I said, we're just initiating planning for the next group, and we'll pay close attention to that.

ABKOWITZ: Thank you. Let's move to Slide Number 7. The mode decision, the mode choice decision, I see as being a strategic decision that almost supersedes some of the other issues like routes and so forth. When exactly will the mode choice decision be made?

WILLIAMS: I don't know the answer to that.
ABKOWITZ: So, is it fair to assume then that everything that's scheduled here in FY 2004 and 2005 are subsequent to the mode choice decision?

WILLIAMS: Well, I would say, first of all what I would say is that we know that the mode is going to be many modes. It's not going to be one mode, okay, we don't believe right now. We've stated that our preference is rail. Our planning basis has been on rail. So, we know that many of these things need to be done regardless of whether it's mostly rail or mostly truck.

We also know that the utilities, in their contracts, have the right to select what mode they use. So, those are discussions that are going to need to take place. They're kind of sensitive right now. So, I would say that most of these activities need to be done regardless of whether you're shipping by truck or rail.

ABKOWITZ: I understand that to a degree, but it would seem to me also that if I don't know, from a facility to facility standpoint, if I don't know yet what mode is going to be used, then I don't really know what routes are going to be used, and I don't know how many casks of different types I'm going to need.

WILLIAMS: That's right. We don't need to decide today how many casks you need, of which type. I mean, for example, we could go out with a procurement that says we would like to
1 procure five BWR truck casks, but we'd like to have the
2 option for you to fabricate as many as 15 more should we need
3 them in the years 2012 through 2015. That's just an example.
4 We know we need a BWR truck cask, but we don't know whether
5 we need 20 of them or five of them today. But I don't think
6 we need to know that today.
7 ABKOWITZ: Okay, thank you. Let's move on to Slide 29.
8 I noticed that in the routing discussion, and in your entire
9 presentation, there was an absence in terms of talking about
10 dedicated rail, except as a security measure. Is that the
11 position of the Department right now?
12 WILLIAMS: The Department doesn't have a position on
13 dedicated rail. Okay? We're waiting federal rail, FRAs
14 dedicated train study. We don't believe that we need to make
15 that decision, or have that preference at this point in time.
16 ABKOWITZ: Okay, let's move on now to Slide 33. I
17 wanted to also address the third bullet that my distinguished
18 colleague from Pennsylvania was talking about. These
19 scenarios that led to this finding were done pre-9/11. And
20 if at the time I had walked in and said, you know, what about
21 the possibility of a terrorist, you know, taking over an
22 aircraft and, you know, flying it into a truck or rail car
23 that's carrying these things, you would have told me, you
24 know, that I've had a little too much to drink or smoke, or
25 something. So, is there any plans to re-evaluate some of
these considerations, given that the environment has clearly changed?

WILLIAMS: Well, I guess all I would say is the NRC is re-evaluating all their regulations in light of security considerations, and we're going to comply with whatever the NRC regulations are. And then I did mention this sabotage work that we do have ongoing that's in that realm. I don't know if you would like to add any more in response to that or not.

KOUTS: Jeff, let me just add post-9/11, there is an interagency review group that is looking at this very issue, and issues as they relate to the transport of these materials, and we will await the findings of that group. The Department of Energy is involved, the Homeland Security, new agency for Homeland Security, the NRC. There are a variety of different players in that, and we'll look to the input from them. But that is an ongoing top to bottom review that's going on right now.

ABKOWITZ: Okay, thank you. My suggestion is you may want to remove that bullet from your presentations until that work has been done.

That was Chris Kouts that gave the answer before.

Let's move now to Slide Number 36. One of the issues that came up when I was on an oversight committee looking at WIPP program transportation is the issue of
tracking and communication, because it's obviously critical in terms of monitoring your shipments and also knowing where your emergency responders need to be informed. And I thought that the Department made some progress during that campaign to move away from a self-grown system and into looking at what commercial vendors had to offer.

I don't really have a question as much as a comment, to just say that there are some very sophisticated systems that are out there that have been developed and are being underwritten by a variety of different customers that are in the logistics area. And, so, I would strongly encourage that as that system gets defined, that you don't get into a situation where some of your internal development folks, you know, think that they need to develop something from scratch. It will be a major area of cost savings and operating effectiveness, and so I strongly encourage that you look at it from that perspective.

WILLIAMS: That's a good point. That's why I have equivalent up there, TRANSCOM, specifically because of that reason.

ABKOWITZ: Good. Slide Number 37, please, and just as a heads up to the next questioning person, this is my last question.

Emergency preparedness for transportation events is a very complex problem, as I'm sure you know. And I guess
one question that I have for you, or maybe you can just corroborate my perspective on this, my understanding is that the way that emergency preparedness is dealt with by DOE is that they actually provide resources to the state, and then the state decides how to use those resources. Is that correct?

WILLIAMS: Yes. Under the Nuclear Waste Policy Act for our program, that's the way it will work, is that we will provide grants to states, and they will train their people. Now, that's not the way it has worked across the board necessarily in DOE for WIPP, for example, and other places. But that's the way we're required under the Nuclear Waste Policy Act.

ABKOWITZ: The concern that that raises in my mind is that when we have these trips that are going from an origin to a destination, crossing several different states, is that we really have no way of knowing what the consistency or compatibility is between these various preparedness activities, and that includes, you know, training, equipment, communication, et cetera. So, I think that has the potential, particularly in the public confidence arena, to be a concern.

Also, even if each state tried to do the same thing, there's some issues about how the states disburse those funds, and how those capabilities align with the routes
that are running through those states. So, in other words,
if I was the State of Colorado, what assurance does DOE have
that the training and planning money is actually going in
such a way as to, you know, present 100 per cent coverage
along the routes that you are concerned about.

So, I think there's a very important issue there in
terms of what we can expect from the standpoint of, you know,
what's the lowest common denominator of preparedness that
we're going to have on any portion along the route. Because
incidents really, you know, don't know where they're going to
occur a lot of the time.

The other thing I wanted to observe is that for the
vast majority of the routes that you'll pick, whatever they
might be, you're going to be dealing primarily with voluntary
fire departments as your first responders, and the turnover I
understand is considerable in those departments. So, again,
your plan, in my mind, needs to be agile enough to deal with
these types of considerations.

WILLIAMS: I agree.

ABKOWITZ: Okay. We're not too far behind schedule, so
we're going to allow another five or ten minutes of questions
here. Carl, I believe you're next on the docket.

DI BELLA: Thank you very much, and this will be short.
Carl DiBella. Slide 21, please. Now, on this slide over in
the right-hand column, and I'm not going to get into detail,
1 you show the conditions in the NRC certificate of compliances
2 for these various casks as to minimum cooling time and
3 maximum burnup, and so forth.
4 Now, I'm not sure, but assume for the moment that
5 NRC has not allowed greater than those--lesser cooling times
6 or greater burnups on a degraded, or a de-rated, excuse me,
7 basis of the cask. What is one of the utilities gives you
8 fuel that does not fit into the certificate of compliance,
9 what exactly is DOE's obligation as far as accepting that
10 fuel is concerned?
11 WILLIAMS: Well, my understanding is we're required to
12 accept five year old fuel as standard fuel. I don't think it
13 has any limits on burnup. Do you know, Chris?
14 KOUTS: This is Chris Kouts. Not that I'm aware of.
15 So, it's basically five year cooled, and if the utility wants
16 us to ship it and that's what they're providing us, then we
17 have to find a way to ship it.
18 DI BELLA: Even if it takes five or ten years to do so?
19 KOUTS: Well, even if it takes additional casks in order
20 to do it, yes, that's correct. We hope, though, to work with
21 the utilities to maximize cask capacity, as I said earlier,
22 and we have a bit of time to work with them on this, and our
23 expectation is that we'll have full cask loads and have an
24 efficient system. I don't think the utilities as a whole
25 want to operate the system inefficiently.
ABKOWITZ: Bob?

LUNA: Thank you. Bob Luna, consultant to the Board.

I was interested in Slide 7, which shows the railroads, about the--and this was called to my attention by a person at one of the TEC meetings, as a matter of fact. You know, I think it's Slide 13. Sorry. This was called to my attention by somebody from Nevada. He pointed out that there is an existing rail line that ends at the ammunition depot at Hawthorn up there in the upper left-hand side, and that it was his concern that that was not given appropriate weight in the decision of setting down the potential rail corridors, and it is a relatively short run from Hawthorn down to the repository.

I was wondering if you could say something about what the--why that route was disqualified early on, and whether or not it might be reconsidered?

WILLIAMS: Well, right now, our plans are to only consider these ones that were done in the EIS. I think Pam mentioned there were 17, or so, preliminary routes that were identified. And I think, Pam, do you know the details? Rather than me guessing, why don't I let you tell it.

ADAMSON: Sure. That route, which was initially looked at and studied, was considered to be not carried forward, but would be monitored. At this point, there is ongoing discussion with a Native American tribe that has issues with
who's got the right to transport on that access road. So, that's why it was not carried forward, because of potential conflicts for those rights-of-way.

ABKOWITZ: Okay, any other questions from--I'm sorry, so ahead.

LUNA: I have a few more.

ABKOWITZ: Please, you have the floor.

LUNA: Thank you, Mr. Chairman.

Let's see, the transportation plan that you spoke about, I was wondering which of these plans are similar to or how they are different from the plan that was put forward to the House Committee on Appropriations, the plan for transportation, cask fabrication and deployment that was done in the year 2000. Is there a common thread between that presentation to the House Committee and any of the plans that you mentioned here in your presentation?

WILLIAMS: That plan there I think was primarily built around the capability of industry to provide casks in a timely manner. I think that's what it was. And what I would say is that these plans are not the same as that plan. Okay? That was addressing a specific issue that they requested, and we addressed that concern that they expressed, and I think it was an Appropriations Bill. So, these plans are completely different than that. However, the one little aspect that's in there about cask capability, manufacturing
and cask capability, we definitely have to plan for, and it will be in our program.

LUNA: Again on the same subject, the industry response to that document was less than charitable, I guess is the way I'd describe it. And, in particular, they were talking about the issue of high burnup fuel and the fact that the industry was likely to offer you high burnup fuel in the year 2010, and that suggested that a development program for high burnup fuel needed to move forward relatively quickly. I was wondering if you had any reaction to that statement, and whether or not that suggests that high burnup fuel cask designs ought not have somewhat higher priority than I detect that you've given it here.

WILLIAMS: Well, yeah, I think I've addressed that a couple times here. But, basically, what we've said is that actually in our FY '04 budget, if you look at that, it has long-lead items. Specifically, you can find in there high burnup, high efficiency rail cask development as a long-lead item.

Now, in subsequent discussions with the industry, they've also told us that we don't need to do that now because they're going to need to do that on their own to address their own storage problems. So, that's an issue I think that needs to be clarified. But we have requested funds for it in our FY '04--I mean, FY '03. I'm sorry. FY
'03 budget proposal--no, the FY '04, FY '04. Sorry.

We just got the '03, and the '04 just rolled out, so it's in the '04 budget, we have requested funds for high burnup, high capacity rail casks, long-lead items. Okay?

Now, whether we indeed need to do that or not, I think is still an issue.

LUNA: Let's see, with regard to the Transportation External Coordinating Working Group, also known as TEC, which our chairman has talked about earlier, my understanding was that TEC was jointly funded by EM and RW in the past, and EM has withdrawn most of the funding, which is the reason that the winter meeting was not held this year.

Is RW going to pick up more of the cost of TEC and pursue using it as a better and efficient route to interacting with the states in getting state inputs?

WILLIAMS: Yeah, I think our answer to that would be yes, we do intend to do that. To what extent we give them funds, I think needs to be--we haven't sorted out the priorities based on the funding that we just received. And there's a lot of call for our funds, a lot of people want the money, and that's something that's on our list of things to look at.

LUNA: I was curious about the--I've heard the people from Nevada say on several occasions that the mostly truck and mostly rail scenarios don't really recognize what they
perceive as the realities of shipping from reactors as they currently exist.

Is the scope of the work that you're going to do to look at reactors going to be to pick up that information and try to modernize it to check to see whether those concepts are correct?

WILLIAMS: Yeah, that's exactly right. And I think over the last ten years or so, there's been more of an ability to ship by rail. The industry has developed a better handling capability over the last ten years because of their need for implementing dry storage and for them lifting heavy loads, and so forth. So, yeah, the answer is yes.

LUNA: I was curious about, and this gets back to Ms. Nelson's question on safety, one of the things that the Board emphasized early on was the concept of a comprehensive safety engineering program that relates to the transportation activity which would assure that human factors, issues and errors as a result of human factors, problems with cask designs and cask operations, would be looked at early in the design so that these are foreclosed, or at least minimized in the operations, both in transportation and in the receival and preparation process.

Can you tell us a little bit about what, or describe how you see integrated safety and human factors coming into the design of the transportation system and the
receival system? That's a pretty broad question, but I think that the question of safety, as has been highlighted by a couple Board members, is one that's going to have public attention.

WILLIAMS: I don't know how to respond, other than I responded to Priscilla before, that safety is paramount. In terms of an integrated safety plan like this, I don't know that we've identified that, particularly with the human factors, and so forth. I guess all I can say, Bob, is that that's something that we'll consider. I think I'd like to hear your input on what you think it ought to be, what you think it ought to cover, what do you think we're missing in what we've got in our current plans that are not firm by any means.

LUNA: Okay, one other, I guess it's an observation, Mr. Chairman, and that is the viewgraphs suggest that routing, in fact, is going to be done by the DOT regulations. But I call to your attention the fact that the NRC, in fact, has an input to routing for spent fuel, because it is considered a greater than--well, because it's of strategic importance. And, so, there is at least one other player who's going to be involved in route selection and security planning.

WILLIAMS: And that's right.

LUNA: That's all, Mr. Chairman.

ABKOWITZ: Okay, thank you. We're running well behind
1 now, so I'm going to close out the question period.

I did want to add to the record, and the question has come up from a public query here, I don't believe it needs to be answered now, but I would like to have it on the record. There is a desire to know what contractors that are involved in the transportation activity and related programs may also have been involved in the Challenger space program and the Columbia space program.

And then a supplemental comment to that is what parties involved in our dialogue today, as well as other stakeholders that are involved in transportation, may or may not be living along routes that could be alternatives to moving these shipments. So, that has been added to the record.

Jeff, I want to thank you very much for both the amount of time you spent discussing these things with us, as well as your perseverance. It's clear that the transportation activity is extremely complicated, and I know we'll visit these issues in more detail down the road. In fact, it wouldn't surprise me if we have a panel session in the future that's devoted just to the transportation piece.

As I mentioned before, we are running behind schedule. We were supposed to have a 15 minute break now. I'm going to shorten that to five minutes, so that we can just take care of the basic essentials, and we will reconvene
in five minutes. Thank you.

(Whereupon, a brief break was taken.)

ABKOWITZ: We have a Board quorum, so let's begin.

We're now going to move in the program from the transportation component to the handoff and next step in the waste management system, which is the surface facilities area. And Jim Gardiner from DOE's Office of Repository Development is going to share where they're at right now in the design and operations planning for the surface facilities.

Jim has a degree in general engineering and is a professional engineer in Washington State. He has 30 years of professional experience, including design, construction, inspection, start-up, testing, operation and procurement at seven nuclear power plants. For the past 15 years, Mr. Gardiner has managed various aspects of the design of a Yucca Mountain repository.

Please welcome Jim Gardiner.

GARDINER: Thank you very much. This is essentially my first chance to address the Board, so I thank you folks for the opportunity.

A little bit about the background that I had in the nuclear power plants. I'm glad to say that out of the seven, six of them are operating. One of them is not. It got mothballed due to lack of funding. Washington Public Power
Supply System was building five nuclear power plants at the same time, and after a while, they kind of realized that stressed their finances a little bit.

With the surface facilities, there are a lot of disciplines involved in these buildings and installations. Normally, I have a number of the BSC staff for support, but they are not here at the moment, so I'll answer your questions the best that I can. But, of course, if something comes up that I cannot answer, I'll certainly try to get back with you with that information.

As indicated, we're picking up from where the transportation people get the waste to the Yucca Mountain site. It looks like we'll move right on into the obligatory technical and boring information right off the bat. There's probably no way to make this exciting or entertaining.

We're going to give you an overview of the processes, and the processes that we're talking about are going to be applicable regardless of how the buildings or how things are situated out there at Yucca Mountain. So, it's kind of an overview, and some of this stuff could change if we move some buildings around, or that type of thing, but essentially it's going to be the same.

So, the major functions that we're dealing with, and this has to do with the whole site, not just a particular building, we're going to have to receive the spent nuclear
1 fuel and the high-level radioactive waste. We're going to be 2 receiving, processing and handling of the empty waste 3 packages that come in, the separate means. We'll be 4 unloading, handling and packaging the radioactive waste. And 5 as part of this, we get to the next bullet, which is the 6 management of the spent nuclear fuel and high-level waste to 7 allow or to accomplish our waste package thermal loading 8 goals. And this is something that kind of complicates our 9 life, being able to get the packages loaded to the thermal 10 range as established, kind of imposed on us by the 11 underground and the TSPA aspect of the project. 12 We'll be transporting casks and waste packages 13 between our surface facilities for the necessary processing. 14 We'll be processing the shipping casks for return to the 15 transportation project, transporting waste packages from the 16 surface to the underground facility, and as a secondary 17 activity, we will naturally be collecting and handling the 18 site generated low-level waste. We do not expect there to be 19 much of that generated, by the way. 20 At all times, we'll be monitoring the surface 21 operations of the repository system performance, and this 22 could be done at a central control room, which will be in our 23 processing buildings, and we may also have some secondary 24 stuff at our administrative sites, which will be outside of 25 the radiologically controlled area.
We'll be retaining the capability to retrieve waste for at least 50 years from the start of emplacement. And if that all goes successfully, then we'll go into the decommissioning and closure of the repository.

The natural functions we'll have to be concerned with at all times is containing the radioactive waste form during our normal operating sequences and protecting the waste during the repository preclosure activities.

We're providing and maintaining a radiological control area. We have to maintain the security and emergency operations center, and there will also be some surface infrastructure and supporting systems.

And at the end here, the next items are common to all radiological facilities that we're going to have out there, so they will apply to the all the buildings as I talk about those individually.

We need to perform equipment maintenance, radiological surveys, decontamination, dry cell cleaning, low-level waste processing. We need to at all times confine and control the radioactive waste sources during normal, off-normal and hazardous event sequences, control radiation exposure, criticality, nuclear material accountability, temperature, human access, for external hazards, and we'll be monitoring the facility operations and performance to ensure that we are keeping the safety of the workers in mind, and
1 the public, and also in accordance with our NRC license.
2 As I look at this slide, it kind of torques my eyes
3 a little bit. It almost looks like the underground
4 facilities here are above the north portal in elevation. But
5 it's actually about 600 meters below, I believe. But our
6 main focus here, the radiological area will be at the north
7 portal, and we have other slides here which will give you an
8 overview of the whole site.
9 Unfortunately, this is a little bit light, but I
10 think we can get through it. Our interface point with
11 transportation is this point right here. This is where rail
12 will come in and legal weight trucks and heavy haul trucks
13 will come at this point. This is where the Yucca Mountain
14 site takes ownership of it. From here, it will come up to
15 the north portal. This is our radiological control area
16 here.
17 Other aspects of this slide, we have an existing
18 south ramp, which is here, and bear in mind that there are
19 exploratory studies facilities that we now have, follows this
20 loop and comes--or starts at the north portal, comes out the
21 south portal. What you're seeing in this area is proposed
22 muck piles. We have to store the stuff that comes out of the
23 tunnels. Up here, there's also a new portal that the
24 underground people have decided is necessary to facilitate
25 and make our operations more efficient.
This is a high-level flow process that's going to be applicable, pretty much regardless of how we orient some of the buildings. As I indicated, starting here at the upper left-hand corner, we can receive by either legal weight trucks or the rail system, and it will only be legal weight trucks or rail coming into our facilities. The heavy haul trucks will have an intermodal transport point where they unload, load onto a rail system, which then brings it into our facilities.

All the items will come into our transporter receipt building, and you can see the functions that we have there, just receiving the casks, remove the limiters. We're going to stand the cask up vertical, place it on a surface transporter.

From that point, it can go a number of places, depending on the condition, or depending on the situations we have with that transportation cask that comes in. It can go directly to our dry transfer facility, be processed, put into a waste package and shipped underground. It could also go to Dry Facility Number 2, which has the same capabilities as the first building that we're building, but notice one particular exception here. It includes the ability to process dual purpose canisters.

If fuel comes into the transporter receipt building and if there is something wrong with it, if there's some
1 problems, some of these may be predicted, some of them may
2 not be predicted, we have a remediation building. And in
3 there, we have the ability to handle off normal fuel, or some
4 other circumstances that we're not planning for or not able
5 to handle at the moment in the dry facility one or two.
6 We also have the option of when they're in process,
7 depending on the heat of the fuel and some other elements
8 that we have to deal with, we could also send our packages
9 out to a surface aging facility. And that could handle DPCs,
10 MPCs. It could hand bare fuel assemblies in a special
11 storage cask. And we could also send transportation casks
12 out there also.
13 If we had our preference, we would go in and build
14 one large facility, get it all done, and turn on the switch
15 and have everything that we need. But, because of funding
16 constraints, also because of available construction time that
17 we have, we've had to go to what we call a phased
18 construction. So, the stuff that you see in the yellow is
19 what we propose to build first. These are things that we can
20 get construction started on and we feel get complete by the
21 time that we're required to take the waste, which is around
22 2010. And, so, we should be able to be up and running with
23 the facilities that we show here.
24 I guess of interest, the first facility is going to
25 be somewhat smaller than what we would like to have, but it
still meets our receipt goals that were imposed upon us. And we'll be able to operate this facility, meet our requirements, and it will continue to operate. Later on, we'll bring on another building, which will increase our capacity to meet the full receipt rates that we're expecting.

We have a disposal container preparation building, transporter receipt building, the aging pad. And on this drawing, the aging pad is up in this area right here. We have about 1,000 metric tons capacity on this pad.

Initially, we'll be building probably about six modules which may allow us to handle maybe 400 to 600 metric tons out on the pad if necessary. We also have some support buildings down here, which is like the diesel generators, and some other stuff, for operation.

By the way, I will tell you that on the back slide there, we're starting construction around October 2007, and we'll be bringing stuff on line around May of 2010. Phase 2 that you're looking at now we're going to be starting around October of 2011, and we feel we'll bring those facilities on around June of 2013.

Phase 2 here, a very substantial building which will be our dry facility Number 2, and we'll have the remediation building as needed.

What you're looking at now is a 3-D model of our transporter receipt building. You come in here through the
1 top, just receive the casks, take the impact limiters, and so 2 forth, off of them. Empty casks will also come back out this 3 way to get loaded back onto the transportation system. 4 Down here, some of the functions, we remove the 5 carriers, load them onto a surface transporter. They also 6 decontaminate check for that type of regulation, stuff we 7 have to deal with. Transportation casks will then exit this 8 building and go over to our dry facility Number 1 for the 9 waste load out.
10 I've already mentioned some of these, but I'll go 11 over them again here. We receive those loaded transportation 12 casks, unload them from the carrier. Load that cask onto a 13 surface transporter for mobility around the site. Like you 14 said, it can go to a couple different buildings. It can go 15 to the dry facility Number 1, Number 2, or remediation 16 building, or it could go directly to the aging pad. 17 Once those casks have been processed in the other 18 buildings, they come back from dry transfer facility 1 or 2, 19 or the remediation building, and then they head back to the 20 transportation project.
21 Of interest here, we're designing this thing at the 22 moment to handle about six legal weight trucks and/or three 23 rail casks per day. This could be adjusted, and we're 24 looking at whether or not we need to increase it or not. But 25 at the present time, this looks sufficient.
We just thought we'd add some arrows onto our chart here to give you just some idea how some of the flow would go. If you follow a normal waste process, it just comes in by rail through the transporter receipt building, gets processed in dry transfer facility Number 1, and it can head straight to the underground. This is our interface point with the subsurface.

Off normal waste, the green, you come in, if there's a problem with it, it can go directly to the remediation building. After it's processed, or put back into a form where we can handle it in our other buildings, then it can either go to dry transfer facility 1, or it could also go to dry transfer facility 2 when that facility is up and running. And, from there, it would then go to the underground.

And if we were aware of some situation where it had to go to waste aging immediately, it would just come in, and this facility here, we would be able to put it into a storage cask, and from there, it goes to the aging.

We have an example here of what we call an omni directional lift transporter. It's one of the concepts that we're looking at for being able to move these casks and waste packages around the site. We've studied this for a while. It does give us some unique options, and it provides us some pretty good flexibility.
One of the reasons this was of interest to us is because it limits our drop, canister drop heights. By using this, it reduced those scenarios considerably. We considered using this for above ground. It was also considered at one point in time to be the transportation mode to go underground also. It's very adaptable here. We can use it to handle all of the different casks and waste package sizes by adjusting the pallet height. This is the pallet that we're talking about down here. It has integral shielding to allow waste package transport. People could be very close to this and have essentially hands-on access to some of the outside of it in order to repair or solve other problems. But, like I said, the evaluation of this transporter option are still ongoing.

A 3-D model of our dry transfer facility Number 1. Bear in mind this said first floor, and this is a couple story building, and a lot of the support facilities are on the upper floors that aren't essential to the waste processing, which is what we'd like to demonstrate here.

We have some in-building storage. That is in this area here, and also in this area here. So, as we remove fuel from the canisters and casks, if a cask or waste package that we have is full, we can still remove the waste from the shipping cask, store it temporarily there, and the shipping cask can go back to the transportation system. So, this
gives us some capability of keeping the efficiency and
keeping the flow through the building at the highest rates
that we can.

Shipping casks will come in here, where they're
decontaminated and lids will be taken off. These are our
transfer facilities, as indicated before. It can come out of
here, go into our welding areas, and those welding areas will
have heat treatment also, post-weld heat treatment. After
welding, it will come out here and it will be loaded onto the
transporter, which takes it underground. It undergoes final
decontamination here, and then to the subsurface.

This is pretty much a repeat of what I just said.
The last bullet there, though, load the waste form into the
waste package in a dry cell operation. We've had a number of
studies discussing whether a wet system or a dry system, we
kind of found from industry standards now it looks like that
the dry system is the best way to go for the circumstances
that we have.

Bear in mind, though, that we have a remediation
building that I'll talk about later which does give us some
capability for handling off normal fuel in a wet environment.
Like I said, I kind of went over some of these.

Close the lids, weld them up, post weld heat treatment, final
inspection on the waste package, load it on a pallet. The
transportation casks get returned.
Anyway, the basic items are fairly simplistic. And the last item here, in-process staging capacity, we're trying for about 48 pressurized water reactor assemblies, 72 boiling water reactor assemblies, and up to 10 DOE SNF canisters. And all together, like I said, we have about two full waste package contents there.

This dry facility Number 2, the layout that you see here, we don't have a 3-D model of it yet, this comes from our CDR report, which has been finalized and submitted. We suspect that the layout in here may be changing somewhat as we get better with efficiencies.

This facility is going to have about two and a half times the capacity of dry facility Number 1. But here again, in here, we have the capability of processing dual purpose canisters, the main difference between this and the other building.

Essentially, the functions are the same. We may have some, or decide on some waste package remediation capabilities here in this building. So, if there are minor weld problems, we can grind those out and make a repair here without sending it to another building.

As just indicated, it's essentially the same building, with the exception of dual purpose canisters. The capacity here is that it about doubles our other capacity. We can maybe handle four legal weight trucks and two rail
1 casks a day. We've increased our building storage, our
2 staging capacity, considerably. We've got 144, 288, and 10
3 DOE SNF canisters, so up to seven waste packages.
4 Remediation building. We're considering now
5 whether or not we need this. If we can do away with it, we
6 would, but it seems like with the number and types of fuel
7 coming in, and the potential problems we could get into, we
8 still need to keep this on the books. This is a fuel pool.
9 So, we have underwater capability, and this gives us some
10 flexibility in being able to remediate whatever comes in or
11 whatever problems that we find. We have drying ability here.
12 It will come out, get loaded back on a transportation cask.
13 From here, it goes back to dry facility one or two for final
14 placement into a waste package.
15 Some of the functions again. Unfortunately, it's
16 too hard to predict which canisters are going to contain off
17 normal fuel. Hopefully, the utilities will have some idea of
18 this and let us know so we're forewarned, and that will give
19 us some chance to improve our efficiency once it arrives on
20 site.
21 We'll also need a low-level waste building. At the
22 present time, we're going to be collecting the low-level
23 waste in each of the individual facilities. They'll probably
24 be held there for some time. As we accumulate the low-level
25 waste, at some point in time then we'll transfer it to this
building where it will be compacted if it's dry. And there
will also be some recycling when we can, and wherever waste
is processed and ready for shipment, will leave the building
areas here and we'll have a couple potential sites to go to.
The preferred site is the Nevada Test Site. We're working
on the regulations and requirements and the permits, and
we'll need to go through them. There are other sites
available in case we need that option. Again, here's the
basic functions that building will be doing.

I covered this briefly before. Probably about
1,000 metric tons is what we need, although that can
certainly be adjusted. We have available room on the pad to
increase that as necessary. A little flow process that we
showed earlier, they can wind up on this aging pad in a
number of ways. They can come from DF1, DF2, or from the
remediation building. So, the flow through there is pretty
simple, and the present means that we have to get the stuff
out there is with that omni directional lift transporter, and
we'll probably also have the option of just a rail car that
will go out there to set them on the pad.

Just more of the functions again. It looks like to
improve efficiency, and so forth, that we do need some aging
for efficiency of processing inside the buildings. But we
also need it for thermal management also. So, it looks like
we can get some real benefits of having these aging pads out
One thing it does help us do which is important is to uncouple the waste receipts and waste emplacement for additional flexibility in the waste processing operations. Due to the number of waste types that we can get, and so forth, this gives us the ability to run a particular type of cask through. Each cask type is going to have to have a different lifting collar installed, lifting yokes, et cetera. So, if we can eliminate or keep to a minimum how many times we change out those yokes and lifting collars, that helps our efficiency. So, this option here of when we process a particular type of fuel is very helpful to us.

Here again, the technology we'll be using is very similar to what's going on now at current facilities, so there shouldn't be any surprises there from regulatory or NRC standpoint. It's pretty standard.

Here's some things that are ongoing. We've had some people go to France to the Cogema plant. We've picked up some very interesting concepts and ideas from them. At this point in time, we've also signed a subcontract with them, and they're coming in to do an evaluation on the design concepts that we have. So, we expect that we'll pick up some efficiencies there. We'll pick up some good ideas. And overall, it should enhance the end product that we're looking for.
We're still struggling with the transportation system, the rail and the truck shipment combinations and the impacts on design. If we get primarily legal weight trucks, that increases our processing to remove the impact limiters, to get them through the buildings. It takes about five legal weight trucks to come up with a full waste package. Whereas, on rail, it's much less. So, that's going to have quite an impact on us on our through-put.

Concurrent operations and construction impact on design. Because things are on the north portal pad, we'll have some buildings built, and because we're facing things, we'll have a second phase. There will have to be some very good coordination of those construction operations, keep them outside of our radiologically controlled area, outside of security fences, et cetera. So, this is going to take some good coordination.

Some of the stuff that we're doing is we'd be better off to make sure that our prototype testing program is operative and we worked all the problems out prior to getting into our actual construction and full operation.

Requirement changes for safeguards and security, that's already kind of been discussed on the transportation end. I'm sure that's going to have some affect also on our operations here at the north portal pad. We've had a vulnerability assessment which is trying to take into account
the terrorist aspects of things, and we're getting some good input from that. It will probably affect our roadways in, some of the ingress and egress.

Thermal management, it does get to be complicated. From a surface standpoint, we would like to have a higher thermal limit, but that's still dependent on the TSPA requirements that's put on us. So, we'll have to accommodate what is best for the repository from an overall performance standpoint.

Fuel characteristics, fuel burnup measurements and requirements. If we can get the utilities to do that, it's a real help for us. If it's got to be done at our site, it's got to come in, there's additional handling. We don't know how long it's going to take to actually get those readings. So, anyway, that's something that needs studied, and will definitely slow down the through-put that we're looking for.

We are going to be constructing an offsite training facility to get a jump on the operations of what we're doing. Essentially, that is the processes on the surface facility, so I'm open for questions.

ABKOWITZ: Thank you, Jim. We'll now open the floor for Board questions, and we'll start with Dick.

PARIZEK: Parizek, Board. I note in a variety of slides, like Number 7, Page 12, for instance, you have arrows that show waste streams going underground. It's only on
Slide 15 that you actually have an arrow that goes in and out of underground. But the question is if for whatever reason retrievability, it's required by law, but if you decide or someone says we have to retrieve, how do you back this thing up? We haven't really been briefed during this meeting, or previous meetings, for that matter, that you could in fact pull the waste out, and where would you put it? You can't put them on the aging pads, they're too small.

And then the question is in order to have a program that's thought this all out, it seems to me you almost have to build in the retrievability story. You're going underground on the one hand, you assume it's all going to work, but in case it doesn't, you've got to reverse it, and we've got to be comfortable that you can reverse it. Or will this be a reactor waste constipation problem for the way to figure this out?

GARDINER: We're certainly aware of the retrievability of things, and we have on other site layouts, we can show you there's probably three areas where we can all together can store up to 40,000 metric tons on pads. And those are all pretty much in a close proximity here of the north portal pad. So, we have the space available if needed.

The process to take the waste packages down, or to retrieve them, is essentially the same. There will be some extra effort required to lift them up, get them back on the
gantry, and get them on the transporter to come back up. But I also have Kirk Lachman here who does the subsurface, and he may add to this.

PARIZEK: Yeah, he has a slide on Page 13 that shows the fact that you might have to do this. But would it stay in the same waste packages that's underground, or would you take them out and have to unpack them and do something? I mean, I'm not too sure what all the steps are. And I wasn't aware you had this interim storage, a place to store up to 40,000 metric tons. Would that be possible for an interim storage, or aren't you thinking interim storage, bringing the waste out and storing it there before going underground? Either way.

GARDINER: We're not thinking interim storage. We're not thinking that. The retrievability option is something that we'll prepare for. What the possibilities of that and its hope are remote, but we do have that capability.

NEWBURY: Claudia Newbury, DOE.

Dr. Parizek, interim storage is prohibited under the law.

LACHMAN: This is Kirk Lachman, DOE.

I'll address some of those. I can address some of those questions when we get to the underground section also if you have more detail on retrievability.

ABKOWITZ: Okay, thank you. Priscilla?
NELSON: Hi, Jim. Nelson, Board. I have a couple questions that are probably easily answered.

The first thing is who identifies off normal other than what is pre-identified by the plants? So, it's a question of where is QA performed, I guess in part on the condition?

GARDINER: Off normal, unfortunately we're going to run into some of that just when we cut the canister open, and we'll find out at that point in time. I suppose we'll have to react to that pretty quickly. I mean, we'll make a determination whether this has to go to remediation building. And until that remediation building is built, which is in the second phase, we can still pull that out and put it in our--we have some available storage in the building. And if, in fact, it was stuck and you couldn't get it out, then we have the option of putting that in an overpack and setting it on the aging pad until we have the facilities available to get to it.

NELSON: Okay. I think that process should be interesting to track, because it seems like with new technology, there may be a way of getting a better early indication of whether you're in that kind of a situation.

And given that, why did you decide not to put some remediative capacity in DTF1, and why did you postpone that to the second phase?
GARDINER: Well, the aging capability helps us, because if we do come up with that kind of a problem, we can put it out to aging immediately. Part of the reason it was removed from DTF1 is the fact of construction time and funding. And it looked like we had the options to where if we get in and we build DTF1, we'll have some lessons learned out of that. We'll get smarter, and that will help us determine more appropriately what we need for remediation, and it will also determine what's needed in DTF2. So, we'll gain from those experiences.

NELSON: Okay.

GARDINER: Primarily funding and construction time is one of the reasons it was left out.

NELSON: Well, there's two other derived questions, one of which is that construction schedule is concerning to me.

GARDINER: Yes.

NELSON: I think you must have analyzed it quite thoroughly to try to figure out what are the constraints on that to be able to do work on 2010? Because if you don't start things until 2007, and you've got to do all the design, the contracting, and everything else and--

GARDINER: It's an aggressive schedule. We know that. And we are trying to adjust funding now to make sure that we can be accommodated from an engineering and design standpoint, and also the licensing efforts. So, funding
1 needs to adjust to support the efforts that we've got to do in the time frame. And there's significant efforts going in right now to preparing schedules that we have the confidence in. And, like I said, this is one of the reasons that we're building offsite facilities for training, offsite facilities for prototype testing, et cetera, to help make sure that comes to pass.

NELSON: Well, it seems like one way of helping manage some of the contingencies might lie in the aging pad. I'm wondering why 1,000 metric tons is the right size. Why wouldn't a larger capacity help you?

GARDINER: We've done some through-put studies. We feel that 1,000 gives us the flexibility that we need. Phase 1 that we're going to start building, we'll probably only put in about 400 to 600 tons at that point in time, have space available on the aging pad. We're showing about 1,000 metric tons available. We could probably expand that to 1,200, 1,400 there at that same location if we wanted to. So, here again, it's keeping costs low if we can, so we just build what we need.

NELSON: Okay.

ABKOWITZ: Dan, and then Thure, and then we have some Staff questions.

BULLEN: Bullen, Board. Just to follow up on the questions from Dr. Nelson with respect to the aging facility.
If you could go to Figure 7? I had a couple of questions maybe. You have the dry transfer facility one that basically is going to load out off normal civilian spent nuclear fuel to the remediation building, which won't exist for three years.

GARDINER: That's correct.

BULLEN: So, the question I have for you is how do you deal with potential damage during transport? If you have a damaged cask that comes in for whatever reason, how do you recover from that without the remediation building? Is there a capability within the dry transfer facility to handle a damaged cask?

GARDINER: I'd say under that circumstance, that we would take that cask and put it in an overpack and put it on the aging pad.

BULLEN: So, you have that capability in the dry transfer facility to put it in an overpack?

GARDINER: Yes. That's where the casks are going to be put into an overpack, is in dry transfer facility Number 1.

BULLEN: Okay. And this overpack is going to be an overpack of--I'm looking down to the next one, which is the remediation building--I'm sorry--dry transfer facility two has the capability to use dual purpose containers. That's not in dry transfer facility one?

GARDINER: That's right. We're going to have limited
ability in dry transfer Number 1.

BULLEN: So, you're going to reuse the dual purpose containers? I guess the question is are they licensed for storage again, or are you going to have to overpack them again? So, it's going to be an overpack of an overpack? If I get dry storage coming in, say the utility wants to pull out a NUHOMES container, and I get a NUHOMES container delivered, what are you going to do with it? I mean, are you going to cut it open and put it into a disposal container, and then if I need to age it, go out onto the pad?

GARDINER: Dual purpose containers will be cut open, and from that point in time, they're done for. It's reloaded in the waste package, so it's gone.

BULLEN: What do you do with a damaged dual purpose container?

GARDINER: Damaged dual purpose container, yes, will probably get put into an overpack and put on the aging pad.

BULLEN: Until the remediation building is built then?

GARDINER: That's probably correct.

BULLEN: Okay. Will NRC license this without the ability to remediate? I mean, I guess I'm just asking the question, I'm not a regulator, but can you license it if you don't--I mean, is this adequate enough recovery from a damaged transport?

GARDINER: We'll be submitting designs for remediation
building. So, that's what NRC will license. But, it's just the point in time when they're constructed, which I don't know, would be the NRC's concern. But it's going in under the license application, yes.

BULLEN: Bullen, Board. I'm just concerned that you have an adequate ability to deal with off normal fuel that's damaged during transport in the dry transfer facility one, as opposed to having to come down and, you know, try to--I mean, I'm looking at the staging, or whatever, the storage facility you have in there is basically just two waste packages in Building 1? I mean, that's all they have the capability to store?

GARDINER: That's right.

BULLEN: And if you run into two damaged waste packages, then are you done?

GARDINER: No. We've got capability of pulling that fuel out and storing it up to two waste packages. But, like I said, the situation that you're indicating where something is badly damaged, I'd say it goes to the pad, aging pad.

BULLEN: Okay. But it has to be overpacked. Now, is there a standard design for the overpack for the aging pad? I mean, do you have current technology, like dry cask storage, now that you've selected, or are you going to build your own?

GARDINER: We have a number of things that we're looking
at, things that are already licensed, which seem to be very
applicable to what we're doing, that we would probably adopt
pretty much directly, or with minor modifications.

BULLEN: But the current plan is not to use a dual
purpose container again; right?

GARDINER: That's correct.

BULLEN: Okay. So, what do you do with all the waste?
I mean, that all becomes low-level waste; right?

GARDINER: Yes. Dual purpose containers, after the lid
is cut off, we have the option of shipping them whole over to
Nevada Test Site. We also have the option to cut them up
into smaller pieces to reduce volume if it looks like it's
economically feasible to do that. But, it looks like the
rates that we're quoted now, as far as disposal charges, it's
better to just ship them over there whole.

BULLEN: Bullen, Board.

Any chance you could decontaminate those things and
then have to dispose of them or recycle them as opposed to
having them--that's a big chunk of metal that's going to be
stuck out in the desert or go to Hanford or go to Barnwell,
or somewhere, or maybe Envirocare. But that just seems to me
to be a tremendous opportunity for waste minimization if you
could clean them up as opposed to burying them.

GARDINER: I think what you are saying is true. But I
think that has to be balanced with the overall efficiency and
the number of movements that you have on the site, which also slows down our through-put. To ship those things back out, they go back through our transporter receipt building and some other stuff. So that, you know, interferes or complicates our through-put coming in the other way. So, there's a balance that needs to be made there.

BULLEN: Bullen, Board.

You just led me to the obvious question. Why does it have to go back that way? Why can't it go out another way?

GARDINER: Primarily because of--well, they're heavy. You need cranes. You need things to be able to lift them.

BULLEN: Sure.

GARDINER: And that's where we've got the facilities to do that, is in the existing buildings.

BULLEN: I was just thinking of it from an industrial engineering point of view. You just don't want to have things go backwards.

GARDINER: Yes.

BULLEN: Could we move to Slide Number 26, please? I'm sorry, the second to the last bullet here, fuel burnup measurements and requirements. I was under the understanding in the contract for the acceptance of spent fuel, you were going to get all the utility records. And, so, having all the utility records, won't you have all of the burnup
characteristics necessary for you to determine disposal? There ought to be a big database that the utility turns over to you with each package. And, so, is there going to be a requirement for measurements, and if so, won't that slow down your through-put?

GARDINER: We certainly hope that you are correct, and we are getting all the information that we need. Why we would have this imposed on us, I am not sure at this point in time. There may be something that comes down because of thermal management. I don't know how extensive the information is, or if it's going to be acceptable, because of how long some of it has been stored, et cetera, if it's going to have to be re-measured when it gets here. But, absolutely, let's hope that we have the information when it comes in and there's no more processing necessary.

BULLEN: Bullen, Board. One final comment that you don't have to comment on. And that is that the thermal management is going to be a key issue with respect to disposal. And I understand that TSPA is going to drive that. The concern that I have is that maybe the current design of the facility with 1,000 metric tons of aging capability, and only two waste package storage and seven waste package storage in building Number 2 is going to limit you in your ability to do the necessary blending. And I understand that the capability to build 40,000 metric tons there is
expensive, but may be more desirable if you really have a limitation of waste package thermal output that you have to deal with, particularly in light of the fact that we heard this morning that the utilities want to ship the high burnup, in pool fuel as opposed to what's in dry storage. So, I guess I just caution you that the 1,000 metric tons, as Dr. Nelson pointed out, may not be enough, particularly if you have to do a significant amount of blending.

GARDINER: Yes.

BULLEN: Thank you, Mr. Chairman.

ABKOWITZ: Okay. Thure?

CERLING: Cerling, Board.

One of the points that you made was about the problem of handling different kinds of casks, having to switch because of different casks coming in. And in the last talk, we heard that the industry is being encouraged to develop the cask design for a variety of casks, and so I was just wondering what input and feedback do you guys have to industry to assure that you don't end up with an infinite number of cask designs.

GARDINER: Well, you brought up a good point. And the other factor that's involved in that is that we really don't have the authority to be telling people when to ship and what to ship. So, when it gets to Yucca Mountain, yeah, that's a
big problem that we have to deal with. That's kind of why
our facilities, the remediation building, et cetera, we're
having to plan for a wide scope of things, because you just
don't know what you're going to get when you get it.

So, if in fact the philosophy from the
transportation standpoint has changed a little to where it's
going to be letting private industry do more of it, yes,
that's another factor we're going to have to deal with. And
our input would certainly be, and I think the input has been
the same for a number of years, standardize as much as we
can. So, that's the message that will be coming back from
us, and hopefully we'll be successful through Jeff and some
others to have that kind of established as policy.

CERLING: And just as an add-on to Dan's question about
the thermal blending and mixing, what sort of fraction of the
things that you're receiving, will have to actually be
blended? Do you have any notion on that?

GARDINER: A difficult question. I guess I do not have
an answer for you on that. Like I said, the combinations we
could get can be pretty unusual. It can be from very hot and
a lot of very hot fuel right off the bat, and that poses a
problem. But with the DOE SNF and some other stuff,
hopefully we'll still be able to, if canisters or the waste
package is full so that we're maximizing the use of those.

CERLING: Then lastly, just as an educational question,
could you elaborate a little more on the different sorts of origins of the low-level waste that can be generated? This is just for my information really.

GARDINER: In the dry cell where we'll be taking the fuel out, there could be crud that gets there. When they start cutting open dual purpose canisters, there will be the residue from that cutting operation. Then we'll have the rubber clothing, et cetera, which will give us some dry stuff that will need to be compacted, et cetera. We do not expect there to be very much low-level waste generated. It would be unusual if we did. That's one of the reasons or benefits that go into a dry transfer system, you'll have a lot less low-level waste generated.

ABKOWITZ: Okay, thank you, Thure. We have time for a couple very quick questions from Board Staff. We'll start with Dave.

DIODATO: Diodato, Staff. I understand, I guess, and correct me if I'm wrong, that parts of your designs will be included in the license application for construction; is that correct? Are you going to include your designs in the license application?

GARDINER: Yes, absolutely.

DIODATO: Okay. What percentage of design completion is your goal for that license application? Do you have a percent completeness that you're working towards?
GARDINER: Well, yes, that's a good question. The safety class system, things that are right on for safety, the Q classified items are going to have a much higher level of completeness than commercial grade items. We have what is called a Yucca Mountain review plan, which is something that has been sent to us by the NRC. In there, they describe what their expectations are on this type of thing, our structure systems and components that are safety related or, you know, Q items.

We have gone through the elements that go into the drawings, our analysis, all of these things that support that type of a product, and we've said which ones are necessary to match up with the Yucca Mountain review plan, so that we're giving the NRC what they desire.

Some of the things that are Q related are essentially going to be rather complete, like maybe 90 per cent complete. They will have analysis, drawings. They'll have supporting data, whether science or from technology, where we got it from. That will be qualified data. We'll be able to demonstrate all of that.

Some of the other stuff, commercial grade stuff, it will just be a block diagram, flow diagrams, some other things like that that are very simplistic, but there's still got to be enough to represent or show NRC how the whole process works, and that we've identified those items which
are licensing concerns and will need licensing attention.

DIODATO: In your response to Dr. Parizek's question, you indicated that in terms of reversibility, you have a couple areas you identified that will be possible locations for storing problem packages. And would construction at those areas be included in your license application, the facilities at those areas, yes or no?

GARDINER: Yes, we're mandated to accommodate or to have retrievability for the project.

DIODATO: And then the final question on that is in terms of the soil thickness, yesterday we heard a lot about seismic issues at the site, and so especially for surface facilities, soil thickness, or unconsolidated sediment thickness in general, what is that thickness there where you're talking about constructing, roughly, would you say?

GARDINER: At the north portal pad, they've taken muck out of the existing tunnels, and it's been piled there. But it is not necessarily, it wasn't done in a structural manner. So, that muck that is in there now is something that would come out, and we had bedrock I think from 50 to about 80 feet down, and at the trailing edge, or at the far edge of the pad, it's probably more like 100, 120, 130 feet down. If that stuff will be removed, we'll have structural fill.

DIODATO: What seismic design do you have now? What criteria, what standard are you designing to in terms of,
1 like, $10^{-4}$, is that the current?

2 GARDINER: That's one of the--yes, $10^{-4}$.

3 DIODATO: What would happen to your schedule and designs
4 if that became more stringent of a standard? Would that have
5 great difficulties for you?

6 GARDINER: I think one of the acceleration factors that
7 we have now are putting us to where we have some very
8 substantial wall thicknesses. From what I've heard from the
9 structural analysis people now, the only major concern they
10 have is that they could get some shift of the buildings in
11 their entirety if they move. So, they're designing for
12 ability to limit that. It's very minor, but we've got to
13 show that we accommodated that, or dealt with that.

14 DIODATO: Thank you.

15 ABKOWITZ: Okay. Carl, you have the final question.

16 DI BELLA: Okay, and I'll be short. Slide 20.

17 ABKOWITZ: Would you identify yourself, please?

18 DI BELLA: Carl DiBella. Yes, thank you very much,
19 you're talking about the DTF Number 1 and Number 2, but here
20 it is Deep Test Facility. What is the Deep Test Facility?

21 GARDINER: I think that's one of those things they call
22 errors.

23 NEWBURY: This is Claudia Newbury, DOE. I have to
24 apologize. We have a new graphics person, and she was very
25 creative in her interpretation of DTF, and you'll find deep
test facility, and something else in there as well, dry test facility. It really is a mistake, and I apologize.

GARDINER: If we drop something, a waste package on the floor, it might be a deep test facility.

ABKOWITZ: Okay, Jim, thank you very much.

LUNA: Can I ask one short question?

ABKOWITZ: One very short question.

LUNA: Thank you. Bob Luna, consultant to the Board.

I looked through the slides and the pictures, and I don't see any mention of what the degree of automation is in this process. I see little people pictured here and there, but I can't tell whether you're highly automated, not automated, or somewhere in between. Can you give us an idea of the degree of automation in this process?

GARDINER: Should be highly automated. The dry facilities, dry transfer capability is pretty much all done remotely, or within hot cells, so that has to be highly automated. We're drawing on inputs that we get from Cogema, who have this process, which they've been operating for a number of years, which we're going to gain some benefit from also.

But, in general, I'd say we're using existing technology that has already proven itself, but we're still trying to be innovative on some other things. That's one of the reasons for the omni directional lift transporter, to see
what benefits it could bring to us.
So, even that transporter, that thing could be operated remotely. We can put guides on the floor to where it follows a track on its own. So, the automation capabilities are good here, and we want it that way to eliminate or reduce any exposures and increase our efficiency.

ABKOWITZ: Thank you, Gentlemen. Thank you, Jim. I'm going to extend my sympathies to the next speaker, because he is the only thing that stands between us and lunch. But, nevertheless, we do have one other component of the waste management system, which is the underground facilities design and operation, and we'll be hearing today from Kirk Lachman. Kirk is the DOE Design Lead for Subsurface Design, Waste Package Design, and Engineered Barrier System Design in the Repository Engineering and Design Division of the Office of License Application and Strategy of the Office of Repository Development. I understand he has a business card that's eight and a half by eleven.

Prior to joining the Office of Repository Development, Mr. Lachman was the Lead for the DOE Nevada Operations Office, National Crisis Response Assets, where he led teams of specialists on nuclear emergency response operations. Prior to that, Mr. Lachman worked on the DOE Nevada Waste Management Division leading teams of specialists
on Low-Level Radioactive Waste Acceptance Program audits and was himself a certified NQA-1 Lead Auditor.

Mr. Lachman also has field experience in the construction of underground nuclear weapons effects tests at the Nevada Test Site.

Kirk?

LACHMAN: I'd like to extend my thanks to the Board for allowing me to present to you this morning. Since you want me to go quickly so everyone can have lunch, it's good to know I'm also a licensed race care driver, so I can do this quick. That is the truth, by the way.

Here's where I pick up, is the lower corner there, the little green guy down at the bottom is my waste package transporter. That's the interface essentially between the dry transfer facilities and the subsurface.

This is a conceptual design, drawing, if you will, of the waste package transporter. It only carries one waste package at a time. It's a large vehicle. This thing is massive in size due to the shielding requirements, and it also uses the concept that Jim brought up in the surface of the omni directional lift transport type mode of propulsion.

It's operated remotely, to address the automation questions. Just to give you an idea on the weight of this thing, we're looking at loaded with the heaviest waste package is right around 397 tons. So, 397 tons. Its
propulsion is electric driven. Those aren't exhaust stacks. That's actually for the rigid chain assembly to come out the top. So, I get that question all the time.

Next slide, please, and I apologize for the readability of this one. How do I get that waste package transporter from the surface to the underground, and where do I go? It enters the north portal, as does all other, all the waste will go through the north portal. This is an example route to Panel 1. It goes down the north portal, makes the curve, and then can go into any of the eight emplacement drifts in Panel 1 of the subsurface. These routes that it will go will be between one and a half to seven miles in distance, not for Panel 1. Panel 1 is one and a half. Panel 4, which we'll show later, is closer to the seven miles.

If you're interested in speed of this, the design bases speed with loaded with a waste package is three miles an hour. That may seem slow. The thing to consider is that my through-put requirements are three waste packages per day, and a 24 hour operation, I've got lots of time to move waste packages.

I thought that would show better. I apologize. What you're looking at is the other panel transportation routes. Panels 1, 2, 3 and 5, as it states on this slide, are a single level. Panel 4 is approximately 70 meters lower, and I say approximately because there's a gradient to
Panel 4 is not needed for the 70,000 ton case. It's just showing for clarity at this point.

Here's where we get into the--it's come down the access main and enters a turn-out, the waste package transporter enters a turn-out, then wants to couple at the loading dock, and what I wanted to show with this slide is that we will load from the back and progress forward. This transporter and the other, I'll show you in a minute, the gantry, do not have lift-over capability. We load the drift sequentially.

If you'd flip to the next slide, it will show the docking operation where the transporter will dock at the emplacement drift dock. The rigid bed plate slides out on the rigid chain that was shown on the transporter, at which point in emplacement drift gantry, which is not always in an emplacement drift, we put them there for when we are putting waste packages there. Once we don't need them, we can move them out for maintenance on a similar type vehicle as the waste package transporter, only specially, so the gantry can just drive on it. And the gantry essentially straddles the waste package and lifts it up, which is shown in the next slide.

This is another big piece of equipment, again, electrically powered, four lifting arms that at no time does this or the transporter touch the waste package. I should
have emphasized that before. The waste package pallet is the mechanism by which we lift the waste package by.

This piece of equipment has many different things on it for us, cameras, lights, it's remotely operated, data gathering, the whole bit. As you see on there, it's electrically driven. It also has dire suppression and detection systems on it.

The repository layout, again, I want to emphasize Panels 1, 2, 3 and 5 are what I need for the 70,000 ton case. Panel 4 is just shown again for clarity, and it is at a lower level. I have excess capacity even with just using 1, 2, 3 and 5, those panels. Panel 5 at the very end, there's about I believe it's twelve drifts that are for our contingency. These are long drifts. These are 800 meters long. You can store a considerable number of waste packages in those.

And why would I need contingency? If we get into an area of bad ground, you heard Mark Board talk about some of his rock studies, if you get into an area you just aren't comfortable with that emplacement drift and the ground, then you just abandon it and go to the next one, or you abandon that area and go to the next area. So, I have roughly a 13 1/2 per cent contingency in these panels.

Concurrent development and emplacement. This is going to go on. It can't just instantly drive these drifts.
It's been suggested we just build the drifts above ground and emplace them, but that's hard to do. So, it's going to take about 24 years just to--20 years to drive all these drifts.

This is an example in Panel 3. Panel 2 doesn't show drifts, it would already have been built. We have airlocks, and I'm going to step away from the mike for a second.

We've got an airlock there, airlock there. This side over here is the development area, and this side is the emplacement. There's little blue arrows, nice blue arrows to show cool, room temperature air, if you will, entering, and the exhaust would then come out the end and go up one of these exhaust shafts, again shown for illustration.

On Panel 3, it's a little confusing in that this is the--if you remember those routes, it comes down the emplacement, and the axis mains, and then backs in. This area emplacement is always at a lower relative pressure of air than in the development so there's no chance of any, if there were to be a breach of a waste package for whatever imagined reason someone could come up with, it wouldn't be driven out that way. It would progress up the exhaust.

On the emplacement air flow that's shown here, your positive pressure on this side relative to the other areas, comes in and through the drifts, and then back out. So, you
have an air ducting system, if you will, to bring that positive pressure in.

   Transportation routes, very similar, same deal.

All the waste emplacement activities come through the north portal and go up and around. South portal or the north construction ramp, depending on which panel you are and what's used for construction, it's never the same. The north construction ramp and the south portal are never used for emplacement. It's the same as the north ramp is not used for construction.

This is just a schematic essentially, or a visualization of a cut away from the drip shields, and it shows you that the one size fits all drip shield, and the different size waste packages that you have there, as identified on the slide.

This goes to your retrieval issues. Why would we want to retrieve? There might be a safety issue. There may be a need to retrieve a valuable resource, or environmental concerns. The law states you have to retrieve on a reasonable schedule. Reasonable is defined as the time it takes for our construction and emplace the waste. So, that's years type time scale for retrieval, so you have time to develop detailed plans. You have time to build equipment and facilities to take care of this. And, again, we have to maintain this for a minimum of 50 years from the start of
This is another eye chest. Essentially there's not a whole lot to show here, other than when I talk about the ventilation system, you wanted me to talk about monitoring. We're going to monitor, obviously, the ventilation system for a myriad of different things, and this just shows some other systems that also would be monitored. They're just not developed yet. So, you take the air, you monitor it for temperature, humidity, radiation obviously, different things, you're monitoring the fans for rpm, for vibration, et cetera. It's pretty standard.

Moving on to the next operational monitoring, it just goes into a little more detail on the vent. Part 2 of this is the radiation part, and you're looking at the fans so you know if you need to shut your exhaust fans down because you've detected some radiation in one of the emplacement drifts that you weren't expecting.

Moving on to the drip shield, as you know, it's a titanium, free standing structure, placed nearly at the closure point of the repository, so that's years down the road, long-term protection for the waste package in the post-closure type period, and it's, like I said, it's emplaced just prior to final closure of the repository.

Just a detail of the example of the interlocking of the drip shields, where they nest with each other, and
1 preventing some migration of the moisture due to these
2 blocking, any moisture that's coming along here will drip
3 down the side, et cetera. I'm not saying there's not going
4 to be moisture condensing on the inside. This is for
5 advective flow onto the outside of the drip shield.
6
7 Some concepts for closure. Again, closure is many
8 years down the road. We are going to close and backfill the
9 excess mains, the intake and exhaust shafts, the ramps.
10 We're not backfilling the emplacement drifts at this time.
11 However, we have not precluded that from our design should
12 that become a positive aspect to the design. So, one
13 possibility is blowing in the backfill with some contraption,
14 such as shown here. It's not that difficult of a concept
15 actually.
16
17 Sealing plugs for the ramp sealing, a couple of
18 concrete plugs probably a Bentonite clay mixture in between,
19 and just what we don't want is an easy path for anything or
20 anyone to get in and out of the repository. Hopefully,
21 they're already out, but the in part is the issue.
22
23 Going to the shaft backfill operations, these are
24 25 feet across. So, you've got a lot of material to bring in
25 here. You're going to just bring it in with just a stemming
26 operation to stem that shaft with granular material, probably
27 crushed tuff.
28
29 And then if you go to the next slide, which is my
last slide, is a conceptual shaft sealing, where you could put in--get rid of all the stuff on the surface, you have a concrete slab or some other plug material, Bentonite, whatever you'd like, some drainage dispersion holes to use the natural flow of the mountain instead of some artificial flow path that you've created.

Okay, now the tables are turned, and it's your risk, sir.

ABKOWITZ: Okay, Kirk, thank you for using your racing car instincts to get us close to schedule again. We'll start with Board questions, and Priscilla has the floor.

NELSON: Okay, really fast. Yesterday, we heard from Bill Boyle that he didn't anticipate there being any need for contingency space, because of the rock condition, as he anticipates. You're maintaining, though, a 13 1/2 per cent contingency space in Panel 4; is that what you said?

LACHMAN: No, it would be part of Panel 5, the twelve drifts at the end of Panel 5, yes, ma'am.

NELSON: The southernmost drifts?

LACHMAN: Yes.

NELSON: And those would be the last ones constructed in any event probably.

LACHMAN: No, that's not correct. The panel numbers do not necessarily, other than Panel Number 1, do not necessarily reflect the order of construction. Current
1 thinking is actually Panel 5 would be constructed as the
2 second panel.
3
4 NELSON:  Is that right?
5 LACHMAN:  Yes.
6 NELSON:  Okay.  Let me ask you then how is this all--I
7 was surprised not to see anything in this presentation about
8 performance confirmation efforts.  Are you involved in
9 setting up performance confirmation efforts, and in all of
10 your monitoring for performance, does that feed into
11 performance confirmation?
12 LACHMAN:  Certainly.  Let me answer your first question
13 first.  I'm involved only in the state that I work with Dr.
14 Blink and Debbie Barr, who is the DOE Lead for performance
15 confirmation.  So, they know what we're doing, and we have an
16 idea of what their plans are.  That's my involvement with
17 performance confirmation.  Certainly our data is available
18 for them, and it's all fed into the central control room, and
19 I'm certain that it could be part of the performance
20 confirmation program should they deem it necessary.  I'm not
21 prepared to talk about the performance confirmation program.
22 I believe that's a subject of a future Board meeting
23 perhaps, Claudia?
24 NEWBURY:  Claudia Newbury, DOE.
25 Priscilla, there is a technical exchange with the
26 NRC tomorrow to discuss our plans for how we will develop
confirmation testing. And we would like to have a presentation on that at the NWTRB meeting in May, if you all would like to hear it.

NELSON: Well, I would, but it seems like the integration of what's happening in operations and the performance confirmation, there really ought to be a real close dovetail.

NEWBURY: That's true. There is a relationship. As they're pulling together the type of testing that we will put in the performance confirmation plan, which is a part of the license, they'll interact with the design people to make sure that they have the right facilities available, the testing is in place as construction is occurring, and any monitoring that's being done for construction or emplacement operations can be folded in if it's needed to be.

NELSON: Nelson, Board. Yeah, that's important. Just finally, what is your concept of what you are expected to supply regarding cleanliness of drifts for retrieval?

LACHMAN: The thing that would concern me about cleanliness of drifts for retrieval is the rail for the emplacement/retrieval gantry clean of debris such that the gantry can travel up and down the drift. Other than that, not really that fussy on if there's dust on the waste package, and I'm not sure if I'm answering your question.
NELSON: Well, I guess from the standpoint of if there
is spalling, any fallout, are you designing these devices so
that they are somewhat robust regarding expectations for
thermally or dry induced spalling of rock?

LACHMAN: The vehicles themselves will be very robust
vehicles. I don't expect to see a lot of debris on the track
given the ground support of the rock bolts and wire mesh,
which should contain the majority of anything but the
smallest chunks, I think the mesh is a three by three type
size. I'm going off the top of my head. You know, if
necessary, you can put the little sweepers, you know, cattle
sweepers like you saw in the front of a train in the 1800s to
push debris off to the side.

Regardless of what's in those, I have to be able to
retrieve anyway, so I have to be able to have a vehicle that
can go in and get those waste packages. And if I have to
design something specific for that due to a specific
circumstance in one drift, I will do that. But it may not be
until a situation where I'd need to go grab it. I have to
keep those free just to delineate through the preclosure so
that I can put the drip shields on. So, that's a similar
gantry type device that will use the same rail.

NELSON: Well, Nelson, Board, and the Board has just
been interested in the past about whether pristine adits are
required or whether there's some amount of flexibility on the
part of the equipment to be able to accommodate stuff, so to
make sure that what you're thinking dovetails with what the
rock mechanics people are thinking in terms of fallout.

LACHMAN: I work with Mark on a daily basis, so I will.

NELSON: Thank you.

ABKOWITZ: Okay, thank you, Priscilla. Dick is next,
followed by Dan.

PARIZEK: Parizek, Board.

I'm looking at Page 3, and I imagine this little
vehicle travelling three miles per hour, 397 tons,
electrically driven, and I figure out there's about 11,000
waste packages, and I take it about five miles average for
the waste packages.

LACHMAN: Excuse me. How many waste packages?

PARIZEK: 11,000?

LACHMAN: 11,000, okay, I didn't hear you correctly.

PARIZEK: So, I've got to go about 55,000 miles or less
with this device. Now, most cars don't go that far without
some problem. Is this thing going to get stuck? Or if it
quits underground, how do you deal with this, or how do you
move it to get it out of the way if you have another one, if
you have two of them?

LACHMAN: The numbers have not been--that level of
detail has not been formalized. We'll need to look at that,
and also determine predictive maintenance schedules, and mean
1 time between failure type predictions. If this gets stuck, 2 say one of the drive set fails, I pick that drive set of 3 wheels up and I use the others to move it.
4 PARIZEK: So, it can be extracted?
5 LACHMAN: Yes.
6 PARIZEK: Because it's a big device.
7 LACHMAN: Yes, sir, it is.
8 PARIZEK: As far as the drip shield, does that get
9 placed with that type of device, or with the gantry, or how
10 does the drip shield get put on?
11 LACHMAN: The drip shield gets emplaced, yes, it is a
12 different vehicle, it looks extremely similar to the waste
13 package gantry, the waste package emplacement gantry. It
14 lifts the drip shield up by the sides and picks it up in a
15 vertical only motion and brings it down the drift, sets it
16 down, goes and gets the next one, interlocking those pins
17 that you saw.
18 PARIZEK: And it's clears all the existing waste
19 packages that are already in place?
20 LACHMAN: Yes.
21 PARIZEK: Okay. And then I had one other question about
22 the backfilling. You show like on Figure 18, backfill. It
23 would help me to understand where that backfill might go with
24 regard to Figure Number like 10 or 11. What exactly would
25 you fill on Pages 10 and 11?
LACHMAN: Okay. All the vertical components that you see, all the shafts filled.

PARIZEK: That could be granular, or cement?

LACHMAN: Very unlikely that I would use cement.

PARIZEK: Or Bentonite?

LACHMAN: Yes.

PARIZEK: Then there would become sort of maybe ventilation possibilities, and so are you thinking ventilation in your backfill thoughts, or is that that far along?

LACHMAN: I am not thinking ventilation in my backfill thoughts. The shafts are filled, the ramps, all three ramps, and all the mains, including the exhaust mains, these guys right here.

ABKOWITZ: Dan?

BULLEN: Bullen, Board. Could we go to Figure 6? You show the exhaust main at the emplacement horizon. Is that new?

LACHMAN: That's new since the repository layout and footprint were redone.

BULLEN: Okay. I was just curious, because prior to this, the exhaust main had always either been--

LACHMAN: You're not going to go above and below, are you, on me?

BULLEN: Well, I just was curious, because this is the
1 first time I've seen it at the repository horizon.
2    LACHMAN: It's at the repository horizon, yes, sir.
3    BULLEN: So, the question that I have is maybe we should
4 go back to, what is it, 10 or 11, and you could explain
5 something to me now. Figure 11 maybe. What's the distance
6 of the emplacement drift? Is it about 600 meters?
7    LACHMAN: On average, they're about 600 meters, yes.
8    BULLEN: So, the exhaust meter has just basically been
9 raised to the repository horizon from the previous layout of
10 an exhaust main that we had seen? I know we had never seen
11 the five lobe footprint here.
12    LACHMAN: Yes.
13    BULLEN: So, it's at that level?
14    LACHMAN: Yes.
15    BULLEN: Okay. Just curious. Now, a follow-on question
16 to that is Figure 7. Since I am exhausting down the drift
17 into an exhaust main that's 600 meters down gradient here,
18 how does air get through the door?
19    LACHMAN: There are baffles.
20    BULLEN: So, there's louvers or baffles?
21    LACHMAN: Yes.
22    BULLEN: Oh, I guess you can kind of see them on the
23 edge here. Never mind. I was just sort of curious about how
24 you'd get the flow that's necessary. Right there, okay. I
25 didn't see that early on.
Okay, then the last quick question that I have is on Figure 9, and this is the five lobe layout. And as I look at this, and it's kind of a follow-on to the question that Priscilla raised with respect to your contingency, I'm looking at this going where is the Ghost Dance Fault, and is there stand-off from the Ghost Dance, and if so, is it--where is it, I guess in my question. And I know where it is physically based on the ESF from the north and south ramp, but it looks to me like there's emplacement drifts that are going right up to it, or maybe even over it. So, maybe that's just an artifact of the repository layout figure, but it seems to me that there ought to be a stand-off from the Ghost Dance, or maybe we don't care anymore. I was just curious.

LACHMAN: I'm going to turn over the exact location, because I'll mess it up, to Al Linden.

LINDEN: Al Linden, BSC. The Ghost Dance Fault only comes into play in Panel 4. Basically, it's right in this area here. So, these drifts in this portion of Panel 4 will cut through it. There will be a stand-off from the fault in those drifts, but there's no stand-off to keep the excavations outside the Ghost Dance right now.

BULLEN: Bullen, Board. So, is this the first time that we have heard that there will actually be emplacement across the Ghost Dance?
NEWBURY: No, they heard it in January.
BULLEN: We heard it in January, but I just didn't see it then? I wasn't paying attention? Thank you, Claudia.
So, Panel 4, you're going actually across the Ghost Dance, which correct me if I'm wrong, but I kind of thought it was a fast flow pathway that you might want to kind of avoid. But I know you're not going to place--but you're going to intersect it with, I don't know, what, 25 or 30 drifts?
LINDEN: Yes, there's approximately 20 drifts, 25 drifts down there.
BULLEN: I will be very interested to see the PA analysis of that. We'll get Bob Andrews some other day. But, thank you very much. I just wanted to clarify that. Thank you, Mr. Chairman.
ABKOWITZ: Okay, thank you, Dan.
This is Abkowitz, Board. I do have one final question. Has there been any development of any kind of emergency preparedness activity, or emergency response plan to deal with any contingencies that could occur involving, you know, dangers to workers both at the surface facility and also in the underground?
LACHMAN: Claudia, do you want to handle that? I don't know.
NEWBURY: This is Claudia Newbury, DOE.
Dr. Abkowitz, that's required by the license for the NRC. So, we will have emergency preparedness plans, as well as safeguards and security plans at the time we start to accept waste.

LACHMAN: The only thing I could add is remember if you go back to 11, the construction development, remember, it's always on positive pressure. If something were to happen that we lost the development side ventilation, then the emplacement side ventilation would have to be shut down until you could get the people out, so that you would not have workers in a potential flow path.

ABKOWITZ: Okay. But there will be a formal plan that will have--

LACHMAN: As required by law, yes, at some point.

ABKOWITZ: Okay, thank you. Priscilla would like the last word before lunch.

NELSON: Nelson, Board.

There's a lot of people interested in this thermal management issue, and understanding how the evolution of modeling capability is going regarding ventilation and humidity moisture. So, I'm wondering at what point will there be a publicly accessible document that people who are interested in this can access and consider, because there's more than one way of addressing these issues, and technically, people want to satisfy themselves.
LACHMAN: So, are you referring to the ventilation AMR?
NELSON: Yes. Well, it's going to have to be updated
from previous ones.
LACHMAN: Yes.
NELSON: So, what I'm wondering is when will the
information on the footprint as it is now expected to work
become available for review by the public?
LACHMAN: The ventilation AMR is a specific instance, is
currently in analysis, the analysis model report, is
currently being revised. They're putting in the analyses
with respect to the new information on ventilation
efficiency, and the layout, and I don't know off the top of
my head the exact date. I know it's this fiscal year, and
I'm not sure when that's published. I don't recall. I'd
have to pull a schedule.
NELSON: Does anybody know a target date? No? Okay.
ABKOWITZ: Okay, thank you. Kirk, thank you for putting
us back on schedule as well.
I wanted to thank all of our speakers from this
morning. This concludes our morning session. We'll be
reconvening at 1:30, and we'll be starting to hear from a
variety of different stakeholders involved in the waste
management system.
Those of you that are unfamiliar with the premises,
there is a restaurant down adjacent to the casino that has a
buffet that's fairly quick and very inexpensive.

Thank you.

(whereupon, the lunch recess was taken.)

AFTERNOON SESSION

ABKOWITZ: We're ready to start the afternoon portion of our program. And as I mentioned in my opening remarks this morning, we wanted to create an opportunity to hear from a variety of stakeholders who will be engaged in activities related to the waste management system. And the emphasis in some of the discussion this afternoon, I imagine will be focusing more so on the transportation component perhaps than some of the other pieces that we've already reviewed today.

I also wanted to reiterate that we have a public comment period at the end of the agenda today, and if you are interested in providing public commentary, please make sure that you sign in with either Davonya or Linda in the back corner. That will be one opportunity for you to share your views.

I also mention that we will be having other panels in the future on these topics, and we're going to try to also schedule some of those in other parts of the country to try
to create as much of an opportunity for constructive exchange of information as possible.

Kicking off the afternoon program will be Steve Kraft from the Nuclear Energy Institute. He will be talking about industry experience in transporting highly radioactive materials. Steve is actually well known to the Board. For many years, he has been employed by NEI and has represented the nuclear industry's view on management and disposal of spent nuclear fuel.

Steve?

KRAFT: Thank you, Dr. Abkowitz. I appreciate the opportunity to appear before the Board. Again, I was rather hoping that my history would not be discussed, or I get an opportunity to discuss it myself, because after turning down lucrative offers from playing NHL when I got out of college, I decided to devote--oh, wait a minute, that's what I tell my children. I'm sorry. Why did you think that was a joke. I mean, really.

I've been asked to discuss the industry's experience with transporting used nuclear fuel. However, there's been a lot of discussion from this podium in response to questions from members of the Board and Staff about the utilities will do this, and the industry will do that, and it's kind of been a one sided discussion. So, anyone that wants to ask the questions that they've asked before and get
our answers to those questions, I'm more than happy to do
that, Dr. Bullen.

Our experience with used nuclear fuel
transportation has been exemplary. Four decades of
experience, 3,000 shipments, 78 per cent by truck, 22 per
cent by rail, 1.7 million miles in this country alone. There
are several shipments a year going on right now.

Internationally, Jeff Williams described the number of
shipments internationally.

More shipments have been made internationally to
date than will ever be made in support of this program. And,
of course, that will continue over time. So, when you have
the amount of material that's been moved, no release of
radioactive contents, no injuries associated with the
radioactive nature of the shipments.

Of course, when you roll a truck off a highway, the
driver could be injured, and perhaps killed, as was in one
case many years ago, but that's not a radiological accident.

That is a transport accident.

In the records, there are eight accidents or
incidents with casks. But I should point out that four of
them were empty casks, and those accidents are cataloged by
NRC because they want to know what happened to the cask in
the dynamic environment of the accident, whether or not
there's been spent fuel inside.
So, you know, you hear a lot of numbers sometimes about if they're talking about "X" number of shipments over time for DOE, and the percentage of the incident rate in the industry is eight accidents out of 3,000, you do the math, and then you do the math again, and you see how many accidents you'll have. Well, cut all those numbers in half, because the 3,000 was with fuel in it, and all the numbers you hear from DOE about shipments have fuel in it. So, you have to sort of look at it that way.

I agree with what Dr. Nelson was saying when asking questions about the integrated safety aspects of it, and I just want to take that a little further, if I could. The fundamental bottom underpinning of the integrated safety aspects of the transportation part of the program is a comprehensive set of regulations that are applied uniformly across the board. And, yes, there are many parties involved. You've got the DOT, NRC, DOE's own internal regulations, et cetera. And that's why I rather like the idea of an integrated safety plan, because I can imagine a situation, and I think this is what you were getting at, I can imagine a situation where you've got competing interests between jurisdictions, between operators, the company that's going to transport, and if there isn't some fundamental integrated safety plan, approach, goal, whatever you want to call it, that everyone has to work to, you can find a person driving
the truck, or driving the train, being pulled in different
directions about go here, don't go there. That's a safe
haven. That's not a safe haven. And all of that kind of
confusion has the potential to lead to safety.

But that's why we point to a comprehensive and
uniform set of regulations. And, of course, the fundamental
aspect of the safety is the canister--I should say the cask,
and that's where the NRC licensing criteria come in.

Right now, Progress Energy routinely moves fuel
from Brunswick Station to Sharon-Harris Station, both in
North Carolina. The reason behind that is they had a small
dry storage facility that become cost burdensome to operate
because it was rather small, and the Sharon-Harris plant had
been designed as a four unit facility, and they built the
fuel pools, but they hadn't built the other units. So, they
are using those fuel pools and they have their own dedicated
train that they operate. They have their own IF 300 rail
cask, which Jeff described as one of those casks that can
still be used. You can see here how many shipments they've
moved, how many train shipments.

The one thing that I really would like to emphasize
with the Progress Energy experience is the detailed
procedures and the adherence to the detailed procedures
through the embedded safety culture that the nuclear utility
has. We cannot operate our plants as safely as we do and as
1 successfully as we do without having a very strong safety
2 culture in the plant.

And what's happened is that when Progress Energy,
4 or they were CP&L when they began doing this, Carolina Power
5 & Light, began operating a train that they got from a
6 railroad and a cask that they bought. They began to notice
7 it wasn't really functioning as well as they'd like to have.
8 They were having braking problems. So, they began, they
9 said well, we can't live with that. Let's go reduce the
10 amount of incidents of those kinds of things, and they
11 changed braking systems, they changed piping systems, et
12 cetera.

So, they do bring that culture to it, which we
13 think is incredibly important to the transportation. They
14 have a dedicated shipping organization because they do it
15 often enough, and that brings about the safety culture. They
16 are constantly inspecting the tracks, the railcars, the
17 locomotives, what have you. And they've got a very strong
18 public outreach program. They are always in contact with the
19 sheriffs, the first responders along the way.

And I think Dr. Nelson mentioned the turnover in
21 that. Yes, they do turnover. Volunteer fire departments
22 turn over quite a bit, which is one reason why you don't
23 train until you're within three years. It's not worth
24 training until you're within three years. And then you've
1 got to train probably a little bit each year, and then every
2 three years, a big program again.
3 So, I just point that out that this is the
4 experience that we've having right now, and it's all been
5 quite good.
6 You probably all remember, was it last year, an
7 incident with one of these shipments where a couple of young
8 fellows in a work program from the county detention facility
9 decided it was time to leave that facility without
10 permission, and then ran away from a work gang and saw the
11 train going by, and saw the flat cars with the casks, and
12 hopped on board. The train was going five miles an hour
13 through that particular town due to an agreement with that
14 particular jurisdiction that it would not go above five miles
15 an hour. These shipments have armed guards. They are more
16 than armed guards. The industry's armed guards are trained
17 para-military security forces. We run the most hardened
18 industrial facilities in the world, and the people who are on
19 those trains are exactly that.
20 Two of them got on the train. One saw the guns and
21 got off, and the other one waited a little bit and got
22 captured before he got off. Fortunately, no one had to shoot
23 anybody. But that's what happened, and they were prepared to
24 do what they had to do to protect that shipment. So, there
25 was a real experience, a real test of what we say is the case
I'm accompanied today by John Vincent of EEI. John is one of the country's leading experts on shipping spent fuel. He's one of the rare individuals, in that he's actually shipped fuel. Not too many people have done that. And before he joined EEI and he was at GPU Nuclear, he was also the vice-president for rail transport with PFS, Private Fuel Storage, Incorporate. And PFS worked very closely with the rail industry to develop what I think is going to be the forerunner of what DOE is going to have to do in terms of shipping.

Prior to PFS working with AAR, the railroad had a HAZMAT procedure that limited spent fuel shipments to 35 miles an hour, required that if trains were either passing or meeting opposite directions, one of the trains had to stop, and there was no free exchange among the different railroads. In other words, if you had a dedicated train with the spent fuel on it, that railroad had to carry through net crates, commercial problems.

The problem was not with the railroads that they doubted the integrity of the casks. They saw all the studies. They saw all the videos. They knew what the casks were capable of doing. But the problem they had, as PFS finally uncovered, was that we haven't built a new railroad in this country in 50 years, and it has become a completely
saturated transportation system, such that if you have a
derailment on a main line in the middle of the country, odds
are you're stopping trains in Florida. So, it became a
commercial interest on behalf of the railroad to come up with
designs that minimized derailments, minimized the possibility
of accidents, not because they were concerned about the cask
opening up. They just were concerned about the integrity of
the ability to operate the railroad.

So, they worked very, very closely with PFS, and
they came up with a car design that now permits routine
freight speeds of 50 miles an hour. They don't have the stop
and pass restriction, and they can do free interchange, no
longer an operational obstacle.

All shipments for PFS will be done by dedicated
train. The industry has no problem with making policy
determinations. They will be done by dedicated train. The
new rail cask design involves—if I could just go to the next
slide, I think I have a picture. There's a low boy design.
Jeff described that. It's got two cars in front and back.
You can't see it too well in this picture, but there's a span
bolster that connects the front car and the back car and the
tank that you see on the car. That's part of the pneumatic
braking system. All these are designed to carry the load
very safety, carry the load at the speed that they're
interested in, as well as provide more assurance on the
1 braking system, which is what was causing some of the speed
2 limitations.
3 These cars were designed and tested at the
4 Transportation Technology Center. They've gone through speed
5 tests, shaker tests, all the things you can possibly imagine,
6 and they will be used for PFS. We suspect that the railroads
7 will be very interested in using this design for DOE. So, I
8 think that that's a very good step forward in assuring the
9 operational safety of spent fuel transport.
10 Let me just amend something here before you ask
11 about it. That's a mock-up spent fuel cask full, weight 125
12 tons. The cradle is not the cradle that would be used.
13 That's an overly high cradle. For the purposes of testing,
14 they put the CG higher on the system design so they could run
15 it around and it would sit lower, as you would imagine.
16 The rail car, the whole package you see right there
17 weighs 476,500 pounds. Of that, the cars are 155,000 pounds.
18 The cask is 250,000 pounds, and the balance is the cradle
19 and all the ancillary equipment on the design.
20 I guess about six months ago, we began thinking
21 that as transportation is going to become of more interest to
22 many, many and diverse groups throughout the country, DOE,
23 other agencies, states, counties, tribes, other interest
24 groups, et cetera, we thought that we would take all the
25 things we always believed about transportation and put them
1 into a policy that we would get the NEI board of directors to
2 approve, and then becomes what we have to work off of, and
3 what we would want other people to recognize are our views on
4 transportation.
5 And these next two slides describe that.
6 Transportation must be safe and secure. That sounds like
7 motherhood, but there's a lot that goes into those two words,
8 safe and secure. And we think the way to do that is to
9 continue what the industries were doing for the last four
10 decades in terms of safe transportation. We think we
11 understand how that gets done. There are vendors in the
12 industry that know how to do this. So, to adopt those
13 transportation principles that we have used.
14 We think DOE should adopt the mostly rail scenario.
15 That's part of our policy and we firmly believe that's the
16 right way to go. Now, that doesn't mean there's no truck, as
17 Jeff described. And I would suspect early on, there will be
18 more truck than later, because what you're faced with is if
19 the waste acceptance Q operates the way it appears to be
20 structured right now, a lot of the early fuel comes from
21 shut-down plants. A lot of the shut-down plants are the
22 older plants. The older plants tend not to have the direct
23 rail connection, so there may be more truck involved. There
24 may be more mixed mode shipments than there will be later on.
25 And then there's a series of principles, some of
1 which are pretty obvious. Certify the casks in accordance
2 with NRC. Enforce the existing comprehensive regulation.
3 You could read them for yourself.
4 But, if you go down to the fourth dash, adopt a
5 safety culture, this is the greatest teaching that I think
6 the industry can offer anyone that wants to get involved in
7 anything nuclear, particularly transport, is the adoption of
8 a safety culture. The adherence to a system of procedures,
9 quality assurance, training, and over and over and over
10 again. We have proved this is incredibly valuable to our
11 operating plants. It's allowed our operating plants to get
12 up to an average capacity factor of 90.6, and no more than
13 eleven years ago, it was down in the 70s. So, that just
14 proves that safety and commercial operation do go hand in
15 hand.
16 Coordinate routing with states and tribes. I think
17 that goes to the need for the integrated plan. Best
18 available transport routes, we want them to adopt dedicated
19 trains, et cetera.
20 With regard to the program that you were discussing
21 all morning, I am personally dismayed that DOE has yet to
22 issue the transportation plan, strategy, whatever you want to
23 call it, document that Secretary Abraham promised during the
24 hearings last year in front of the Senate on the resolution
25 approving Yucca Mountain, where he talked about the need for
1 a transportation strategy.
2 It seems to me that that is the top level document.
3 That's what all the things you've been asking about all day long with regard to transportation flow from that. The need for stakeholder input would be described in that, how you would do that, how you would select modes, how you would select routes, et cetera. And how is not telling you what they are, but how the Department will go about doing that, and open that up for comment and have the people who are directly affected comment back as to how they want to see that done.

12 The question was asked by Dr. Abkowitz about when are you going to select mode. Well, let me give you an example. To me, mode is part and parcel to route. And the kind of thing that I would imagine would happen, let's pick a hypothetical, let's say you, hypothetically, have a power plant on a large inland body of water, hypothetically, and when you built the plant, because you are on that body of water, you didn't bother to install major roads or major rail connections, because you barged in all the heavy gear, the steam generators, the reactor vessel, the switch gear, all that stuff. So, the DOE planners might logically conclude maybe we should barge spent fuel casks in and out.

24 Well, perhaps the surrounding communities and the states touching that large body of inland water might say oh,
we don't want that. Well, then that produces the opportunity for dialogue, where all the stakeholders can get around the table and say, well, what do you want to do. Do you want the fuel moved, or don't you want the fuel moved? If you want the fuel moved, you don't want to barge it, how do you want to do it? Do you want to go down that road to that stoplight and take--think about everything that can flow from that. What DOE does not have is a strategy. You know, Jeff said they were working on it, and, you know, hopefully it will come out soon. But that's where it all has to start. The next thing they have to do is figure out the logistics that flow from that, so much fuel in these locations, I've got to get it to that location, I've got the possibility of barge, rail, intermodal, what are they going to be. Until you know what those possibilities are, there's no basis to talk. This is not rocket science. This is not even science. This is just practical application of planning and engineering to get forward on this program.

And, again, I'd just point out that that's where the integrated safety system would come out. It's where you would describe how you're going to do your emergency planning, I mean, all that stuff that's been asked about. Transportation system, of course, needed it. They're going to support waste acceptance beginning in 2010. We want them to confirm the rail. I apologize for the
1 acronyms, but we couldn't fit all the words in. The draft 2 transportation integration contractor statement of work that 3 was issued in September was a major improvement over the 4 regional servicing contractor. It still is terrible and 5 needs to be improved dramatically. We read that. We 6 couldn't figure out what someone would bid on. And that's 7 the feedback we gave them in our letter back to them, which 8 they have not made any of that public in terms of the record. 9 It says exactly that. It says you've got to put out the 10 strategy. Then you've got to define what it is you want 11 people to really--a better definition of work, schedules and 12 milestones, et cetera, dedicated trains, and of course 13 incorporate benefits of PFS planning.

NRC just recently published the testing protocols 15 for the package performance study. This is something they 16 had been talking about for some number of years now, and I 17 understand there will be more public meetings in the next few 18 months about that. We are interested in how they're going to 19 proceed. I'm picking my words carefully here. We are 20 interested in how they're going to proceed with that.

Right now, the regulations produce extraordinarily 22 safe casks and an extraordinarily safe shipment. So, it begs 23 the question of what is all this about. And when we've asked 24 DOE about this--I'm sorry--NRC about that in the public 25 meetings they've had, the answer has been, well, there are
certain things we want to learn about better because we've improved analytical capabilities, et cetera. But, also, it's for public confidence building. And we said fine, you know, that's fine by us. We're all for that. How are you going to do that? And where they got lost in their discussions over the months was telling us how they were going to take a cask and, you know, lift it up to 30 feet and drop it and instrument it on a non-yielding surface.

And the reaction we have to all of that, and it doesn't take a focus group to tell you that, is that the average member of the public has no clue what that means and what that does. So, what you need to do is come up with testing that actually demonstrates something that the public can actually see and understand.

Now, for example, and this is some problems we still have with their plans, is that I have no difficulty with them wanting to take a cask and drive it 75 miles an hour into a wall to prove the cask is okay. But don't make it an unyielding wall. I mean, let's talk about real conditions. That cask will never hit an unyielding wall in reality, because they don't exist. You have to really go out of your way to build something awfully close to it in testing.

So, we would like to see them use real world criteria and real world situations, and invite the public to
A number of years ago, British Nuclear did a test. There is a very elaborate railroad test facility in England, and they took a cask that's designed for Magnox fuel and laid it on a rail car on its side across a crossing, and they took a remote controlled train and ran it about 80 miles an hour into that cask, much the same way as Sandia National Laboratories did with the trucks back in the Seventies, and they obliterated the front end of that train pretty good. And when asked who witnessed it, the answer was Railway Bus, people who love railroads, who never see the accident, they just see the aftermath. People who were interested in transport of spent fuel were nowhere to be seen except the professionals who showed up. So, I'm not clear what purpose that was. They instrumented it, you know, and they filmed it, and it was all very exciting to watch, you know, the films of it, but I'd just point out that if you're going to do it for the purposes of public confidence building and outreach, then you need a whole different kind of plan than if you're going to deal with scientific work.

If I could have the final slide, just a summary. Used fuel transport has been and will be safe. I think we've proven that over the years, both in this country and internationally. Significant experience for DOE to take
advantage of. Transport cask designs are strong and safe, uniform regulations, extensive planning, and our experience. That closes what I wanted to say on transportation. I'm more than happy to answer any questions about this and any other topic you might ask.

ABKOWITZ: Thank you, Steve. I'm going to actually lead off with a couple of questions. I certainly learned some from your presentation, and it certainly appears that the industry has had a lot of practical experience in this area. Referring to the DOE strategic plan that is purported to be under development, have your opinions, or the opinions of the constituents that you represent, been formally solicited by DOE in preparing that plan?

KRAFT: No, sir, have not.

ABKOWITZ: And could you speculate on why that's the case?

KRAFT: No, I couldn't. I mean, you asked Jeff and he gave you the answer, "I can't answer you," and I get the same answers when I ask them. So, it's hard to really know.

ABKOWITZ: We're under the impression that perhaps because of the pending litigation between DOE and the utilities that had cut down on the communication channels. Is the NEI a party to those suits?

KRAFT: No, NEI is not involved in any of that litigation. The litigation is carried out by individual
corporations that have a true interest. We are not one of those in those court of claims cases.

I think that you heard Jeff and Chris this morning talk about the litigation being a barrier to discussion. I have to tell you this morning was the first time I ever heard them say so in public. There have been hints that that's the reason they're not talking to us. I don't think that has to do with transportation, though, because we have attempted to engage them over the last year on facility design, waste acceptance rules, lots of things have to get worked out between the utilities and DOE on waste acceptance activities, and up until about a year ago, there was a very open dialogue, and all of a sudden it sort of stopped. And we never knew why. There were hints that it was the litigation. This morning, I finally heard it.

But, I don't think that's what's affecting the transportation. I think they are just simply not ready to talk. You can draw your own conclusions from that, but I think that that's the reason on that one.

ABKOWITZ: Okay. And I assume that you are ready to talk when asked.

KRAFT: Absolutely.

ABKOWITZ: I also had one other question. You made the comment about the mostly rail scenario being the one that appears to have the most practical opportunities at this
1 point in time. Do you see that the mostly rail scenario
2 would require having a spur built into the Yucca Mountain
3 facility, or is it plausible that since a lot of that
4 material will be in dual purpose casks, that a rail spur
5 construction is not required?
6     KRAFT: Well, dual purpose has nothing to do with
7 intermodal. That's, of course, transport and storage.
8     ABKOWITZ: Okay.
9     KRAFT: So, let me make sure we get the terminology
10 right here. I think the answer has got a timing quality to
11 it. I think that over the long haul of the program where
12 they're going to run the acceptance of waste and the
13 emplacement of waste over a very long period of time, that
14 efficiency and cost probably indicates you should have some
15 kind of rail connection into the state somehow, whether it's,
16 you know, one of the 70 showed, or some other idea that they
17 look at and evaluate, I really think that that's right.
18     But you probably can construct the program up, and
19 this is what I meant by understanding logistics as well, I
20 mean, if you've got the fuel you know that you want to move
21 in the first year or first two years, and you don't have the
22 rail spur built yet, there are ways around that problem. You
23 could do legal weight truck from the reactors. I don't
24 recommend it. It's a long haul. It's not really the way we
25 would prefer it. You could do intermodal facilities
1 somewhere in the state of Nevada and heavy haul large cans
2 over for a very limited amount of time. But I think in the
3 long run, you're going to need that rail connection.
4 ABKOWITZ: Okay, thank you. Dan?
5 BULLEN: Bullen, Board.
6 Steve, since you alluded to it, I thought I'd ask
7 you with respect to the industry perspective on communication
8 with DOE, particularly for the selection of technology, a lot
9 of spent fuel is going into dry storage, and right now, the
10 economy of scale dictates that you put it into big cans,
11 those are dual purpose cans that obviously the DOE has to cut
12 open and throw away, is there an opportunity for
13 communication between the DOE and the utilities in the area
14 of yet to be canisterized fuel to make a little bit of that
15 transition easier?
16 KRAFT: I'll answer the question, but first a qualifier
17 that you're right, most of the fuel going to dry storage
18 going forward will be in dual purpose casks, and there's a
19 reason for that that I'll mention. And nothing I say today
20 suggests that is still not the optimal way to do it, even if
21 they cut them open and throw away the can, not throwing away
22 the casks, the canisters.
23 BULLEN: All right.
24 KRAFT: We understand ourselves on that. There is ample
25 opportunity for interaction with the industry on this
question. You know, we've made ourselves available. We told
them we want to talk to them about it. I think the industry,
no disrespect intended, you're opening the door here, no
disrespect intended to any of the speakers. Okay? I know
them all. I've known them for a long time. I respect them.
But to hear them tell it, you would think the industry is a
bunch of recalcitrant children who simply don't want to
cooperate. And you know what? It is not the case.
Yes, there are issues the industry has, and it is
not a one way street. We are connected with a contract.
Many of the utilities are still regulated entities and have
Public Utility Commissions that oversee what they have to do.
In other cases, they have boards of directors that minimize
cost. And my point is that there are discussions that can be
had that will lead to an understanding of what fuel will show
up, and what basis can be available for that material to be
the material that DOE wants.
Now, granted, I doubt that DOE would be successful
in ordering utilities to say I want, you know, this from this
plant and that one from that plant and that one over there,
because that gives me an optimal heat load in my waste
package. That's probably too much to expect. But there is a
big difference between the sorts of things you heard said
this morning, and absolute, you know, adherence to a strict
set of rules from DOE.
So, there is a lot of opportunity for DOE to talk, and if we have to work our way around litigation concerns, well, then let's work around litigation concerns. I mean, that's just not been addressed. And I personally would like to see that happen, and I know the utilities would like to see that happen as well.

BULLEN: Bullen, Board. Just one quick followup question along that line. You introduced the concept of the private field storage initiative, which we haven't heard anything about from DOE because obviously it's funded by the utility industry. How would you foresee the interface between PFSN, the Yucca Mountain, predominantly because of the fact that obviously Yucca Mountain doesn't have the staging capabilities to accept fuel, but if there's enough lag storage sitting out in the desert in Utah, do you see it as an opportunity that DOE is going to embrace, or do you think DOE is going to completely ignore it?

KRAFT: Given the way you just described it, I want DOE to ignore it. Because part of the agreement with the host organization, the Skull Valley Band of the Goshute Tribe, is that it is not part of the DOE program at all. How it would interface is the same way Morris, Illinois will interface. It is just another location that utilities have their fuel. The contract allows utilities to say I don't have it at the plant. I have it here. Go drive your truck or train over
1 there to get it. That's exactly the relationship they will
2 have. This facility is a substitute for onsite storage, not
3 for anything DOE has to deal with.
4 BULLEN: Bullen, Board. Just one last question then.
5 To reiterate the fact that it's not on site, you
6 basically have a Q of utilities that basically think they
7 have this pecking order of shipments, and my guess is that
8 you can then designate that it go to PFS and pick up those
9 types of shipments, rather than come to the utility to get
10 them; is that the case?
11 KRAFT: Yeah, within the limits of the way you described
12 it, I think that's correct. The utilities, you know, Jim
13 Gardiner was correct this morning, as was Chris Kouts, the
14 strict reading of the contract says as a utility, I get a
15 slot associated with a spent fuel element that came out of my
16 reactor on a given date prior to all these others. It's
17 like, you know, SAT scores, percentiles on the bulk, and I
18 get to tell you as DOE, you know, I put it over here in my
19 broom closet, so you've got to go to my broom closet to get
20 it. Okay?
21 That is about as impractical as you can imagine.
22 So, I think there are ways that we can work out with
23 utilities and DOE as to how to go about doing that in an
24 efficient way, because the utilities want this to happen as
25 well, and I think there are ways to work that out.
One of the things that we've thought about is campaigning. And campaigning, you know, imagine you've got so much fuel at a utility and it would take three years of shipments in or around the utilities operating schedule to off load it, well, then campaign it and plan it. Now, if you do that, then you've got several other utilities ready to get kicked back in the Q a little bit, and we'll have to deal with that somehow, commercial arrangements, swapping positions, who knows. But none of these have even been discussed, and I think we're at the point now where DOE is driving designs that assume the absolute worst case what they will receive, without engaging in discussions with the utilities about how to make that make some sense.

BULLEN: Thank you very much.

ABKOWITZ: Okay, thank you, Dan. With Dan, it's kind of like Kobe Bryant, you can't control him, you can only home to contain him. Do we have any other questions from Board members, consultants, Staff?

(No response.)

ABKOWITZ: Steven, thank you very much.

KRAFT: Thank you very much. I appreciate it.

ABKOWITZ: Before I introduce our next speaker, I have kind of the corollary to what Steve was talking about trying
1 to convince his kids that he was an NHL player. I actually 2 play ice hockey, and I've got the opposite problem. A few 3 years ago when I was felling more spry than I do now, I 4 promised my son I would continue to play competitive hockey 5 until a certain milestone age that I haven't reached yet, and 6 it's becoming very difficult for me to fulfill that 7 commitment. And thank goodness for Abdula, is all I have to 8 say.

Our next speaker is going to be representing the 9 State of Nevada, and our speaker is Bob Loux. Many of you 10 certainly know bob from past activities. He's certainly very 11 familiar to us here at the Board.

Bob has a master's degree from the University of 14 Nevada, Reno, and has been employed by the State of Nevada 15 since 1976. His work for the state has primarily involved 16 energy policy, with emphasis on electrical energy 17 forecasting, natural resource assessment, renewable energy 18 stimulation, energy conservation, and, most recently, high- 19 level radioactive waste management.

Today, Bob will give us the State's views on the 20 transportation issues regarding spent fuel and high-level 21 waste.

Bob?

LOUX: Good afternoon, Mr. Chairman, Members. Thank you 25 for your invitation to be here today. I guess if DOE
believes the industry are a recalcitrant child, I'm not sure how they think of the State. Well, maybe I do know how they think of the State. Bad analogy.

As you may know, the State has employed numerous experts in the transportation arena. Most notably, you have Bob Holstead and others, and due to conflicts with the meeting in Tucson, the Waste Management meeting, Bob is there and delivering papers concerning I think many of the topics you're talking about today in transportation, and I hope that I can provide, with your agreement, Mr. Chairman, provide the panel and others with those papers as they're released later this week. As you know, Bob is the real expert here, so I'm kind of pitch hitting for him in some sense.

Obviously, the State of Nevada has been involved in transportation issues for many years. One of our primary concerns at this juncture in time has to do with the Environmental Impact Statement. As I think it was alluded to here earlier, the State in fact is engaged in litigation with the Department of Energy over the adequacy and the validity of the existing Environmental Impact Statement for Yucca Mountain.

And our view, of course, is that the EIS is legally and substantively deficient and inadequate in many respects, principally in the transportation issue, as well as others, and we would contend that the only way that a comprehensive
transportation program and plan can really go forward is with a plan that's embedded in NEPA, embedded in the Environmental Impact Statement process. And we think that DOE has got to commit to that, and specifically prepare an EIS that's specifically for transportation.

It's interesting to note in our litigation against DOE, of course as I've indicated, we believe it's legally deficient and inadequate. The government, on the other hand, has an interesting argument about the EIS itself that has some bearing here, in that they're arguing, in response to our case, that the resolution adopted by Congress to override the State's veto and signed in law by the President constitutes entirely new law and supersedes entirely the Nuclear Waste Policy Act as we know it, and as a result, they're arguing that in fact the EIS is moot.

So, a cynical person might reach a conclusion that depending either one of us is right, either that we're right and it's insufficient and legally deficient, or whether they're right and it's moot and doesn't exist, there really is not an Environmental Impact Statement concerning transportation, and perhaps not even Yucca Mountain, and may not be one in the future.

So, that's why I think we reiterate the concern that we need a valid EIS, one that's specific to the transportation issues, that will track the system that's been
1 talked about, both nationally and in Nevada.
2 What DOE appears to be doing instead is sort of a
3 piecemeal approach to transportation planning, crafting
4 whatever message seems to fit whatever audience they're
5 talking to at the time.
6 For better than two decades, we have been involved
7 in this issue. We have probably provided the most
8 constructive comments and criticisms of the program in the
9 transportation arena itself that we've made anywhere else.
10 And despite the opposition to this site, we've provided every
11 one of the federal agencies involved our view on these issues
12 and made constructive proposals about how we think the system
13 ought to go forward, how we think the planning ought to be
14 done, and other issues associated therein.
15 I'd like to note two things. One is we've had a
16 petition for rule making into the Nuclear Regulatory
17 Commission since 1999 concerning transportation, terrorism
18 and sabotage, which has never been acted upon, never been
19 dealt with at this point, still pending. And after much arm
20 twisting I guess, the Advisory Committee on Nuclear Waste has
21 finally agreed to hear what the State has to say about
22 transportation since they've heard from all of the other
23 entities already, and a meeting I guess is going to occur in
24 D.C. sometime in April. The actual date I don't think has
25 actually been decided yet. So, we will be making a
In addition, what we'd like to do is associate ourselves with I think a document you probably have gotten in your packets from the Western Interstate Energy Board. It contains a variety of resolutions adopted by Western Governors. It contains a number of policy recommendations, and other factors that of course we've been deeply involved with and want to associate ourselves with.

After all, of course, the Governors are the ones that are on the front line on these issues. They're the ones that get the calls, the ones that have to make the decisions about emergency management planning, response, all of those sorts of things. So, the Governors, at least in the Western Governors, have been deeply involved in these issues for probably better than 15 years. In fact, the Department of Energy has funded the Western Interstate Energy Board, which is a component of the Western Governor's Association. They actually put together a transportation primer that contains a comprehensive framework for adequate transportation planning.

To maybe answer one of the questions that came up here earlier, we have not seen any evidence of any kind of planning in the transportation arena whatsoever. Likewise, we've had no contact with DOE about these issues of any kind. Since the mid Nineties, we've been recommending about four basic components of risk management that should be
looked at by DOE. We believe there needs to be, first of all, development beyond EIS, development of a preferred transportation system. There needs to be a comprehensive approach to risk management and risk communication. We endorse the idea of full-scale physical testing of shipping containers, and we believe there needs to be an accident prevention and emergency response program that associates with the entire campaign.

The comprehensive risk assessment program should cover all the components of transportation. Obviously, will calculate probabilities and incorporating other data and models. This framework should be used not only working as a risk management tool throughout the project that involves the public, but risk management should be the basis of communication throughout the program as well.

We’ve advocated a preferred transportation system that DOE has yet to produce to reduce risks and avoid a lot of the public perception issues that are out there, and it has several components. I think several were mentioned here earlier. We believe dual purpose cask ought to be used for at-reactor and offsite transportation of spent fuel. We believe the oldest fuel should be shipped first. No fuel should be shipped until it has been cooled for at least 20 years.

Rail probably should be the transport mode of
choice. We think that, and I'm glad to hear that the industry agrees, that the use of dedicate trains should be mandatory. That's something that the American Association of Railroads has been advocating for a while.

As early as possible, DOE and its carriers should identify preferred cross-county mainline rail and interstate highway routes, in consultation with stakeholders. And as early as possible, DOE should fully involve corridor states, Indian Tribes in system planning, and provide financial assistance under the 180(c) provision of the Nuclear Waste Policy Act.

We advocate a comprehensive and coordinated approach to accident prevention and emergency response. We believe DOE should maximize the use of regional organizations, like the Western Governor's Association, Western Interstate Energy Board. Obviously, DOE and the affected states should coordinate with Indian Tribes and local governments.

DOE should develop a comprehensive safety program modelled after the WGA-State-DOE WIPP transportation program that was worked on a number of years. They should adopt the Western Interstate Energy Board's September '94 proposal for evaluation and final designation of preferred shipping routes.

DOE should implement then 180(c) financial
assistance to the tribes, the state and local governments through rulemaking. And DOE should revise its plan for privatization of transportation services to emphasize safety and public acceptance.

The third area the state has really advocated for a long time as many stakeholders, in fact, nearly every state in the Western United States has advocated, is full-scale testing of casks. Instead of full-scale testing, the NRC currently relies on, as you know, scale model testing and computer analysis.

What we've urged, and it really hasn't happened, we've seen the recent draft protocol for demonstration testing, and we are going to be involved in that program, as Steve talked about earlier, and will be for very detailed comments on the testing protocol and participate in the meetings.

Based on our previous analysis and our preliminary review of the NUREG-1768, we're committed to the position that demonstration testing would not be an acceptable substitute for the combination of full-scale testing, scale model testing, computer simulation of each new cask design prior to certification.

Therefore, we advocate the following relative to cask testing. Meaningful stakeholder role in the development of the protocols and selection of the test facilities and
personnel; full-scale testing sequentially of all the tests prior to NRC certification, or as a prerequisite to DOE procurement; additional computer simulations to determine performance in extra-regulatory accidents, and to determine failure thresholds; re-evaluation of the NRC Modal Study findings, and revision of the cask performance standards, if necessary; and evaluation of the costs and benefits of destructive testing of a randomly selected production model. We think those are all very important elements of a cask testing program, one that we are going to be trying to persuade the NRC to move in.

I guess lastly, I'd like to talk a little bit about projected numbers of shipments. As you may recall, there are any number of estimates of shipment numbers. Recently, DOE, during the debate this last spring, DOE made estimates as low as 175 shipments per year to Yucca Mountain, which we believe is not only inaccurate but really under estimate the nature and magnitude and scope of the campaign.

In order to realize that number, a couple of assumptions have to be made. DOE would have to ship 90 per cent of the spent fuel by rail; assure that each shipment is made up of at least three cars per train; make thousands of barge and heavy haul shipments to move spent fuel from reactor sites without rail access to rail heads; create staging areas in rail yards and ports around the country in
1 order to assemble these trains; and lastly, and probably the
2 most difficult, is construct the 300 to 400 mile rail line
3 accident in Nevada at a cost probably exceeding a billion
4 dollars.

5     We've reviewed all of these estimates. We've
6 looked at the EIS. We've spent a great deal of time, and
7 those of you that know Bob Halstead, you know that he has
8 done this meticulously.

9     According to the DOE EIS, the 70,000 metric tons
10 for Yucca Mountain would take about 24 years, and under the
11 expanded capacity in the EIS of 119,000 metric tons, it would
12 take over about a 38 year period.

13     The DOE mostly truck scenario would result in the
14 largest number of shipments, perhaps as many as 180,900
15 shipments over 38 years, perhaps 2,800 or more per year. The
16 mostly rail scenario could result in anywhere from about
17 45,000 shipments, or as few as about 13,000, depending on the
18 mix of freight and whether they're dedicated trains or not.

19     The DOE mostly truck scenario right now is the only
20 national available scenario that's feasible. All 72 power
21 plants, all DOE sites can ship by legal weight truck.

22     As we said earlier, there's at present no rail
23 access at Yucca Mountain. Construction of a new line,
24 perhaps as many as 344 miles in length, could take ten years,
25 cost perhaps more than a billion, and probably is a more
1 difficult engineering challenge as the repository.
2 The alternative rail construction is delivery of
3 large rail casks by 220 foot long heavy haul trucks over
4 distance of 100 to 300 miles on public roads, and even in the
5 short-run, that's probably not feasible.
6 So, for maximum utilization of rail for cross-
7 country transportation, as described in the EIS, it appears
8 to be unlikely. The mostly rail scenario assumes DOE can
9 ship thousands of casks by barge into the ports of Boston,
10 New Haven, Newark, Jersey City, Wilmington, Baltimore,
11 Norfolk, on and on.
12 Alternatively, the DOE would have to move thousands
13 of casks from reactors to rail connections using large heavy
14 haul trucks, which will require state permits and special
15 route approvals. In the end, even if rail access to Yucca
16 Mountain and all the other impediments to rail transport can
17 be resolved, mostly rail would mean moving no more than 60 to
18 75 per cent of the commercial fuel by rail, and the remaining
19 are going to be by legal weight trucks.
20 In summary, I guess what we've seen is the DOE
21 program is unfocused, is really a piecemeal approach to the
22 whole issue. If DOE had worked through the logistic
23 problems, it isn't apparent to us or any of the other
24 stakeholders that are involved in looking at these issues.
25 And, once again, the first step in this whole program and
plan has to be a valid EIS on which to base everything else that occurs in the program, including a national transportation plan.

In the handout I have given you is a whole list of statistics that our transportation people have generated regarding shipment numbers, shipment miles, and the like, which in our view are unprecedented. You can look at those are your leisure. And, as well, as I mentioned at the outset, as soon as I have available to me the four papers that our guys are preparing and utilizing at Waste Management, I'll make them available as well.

With that, Mr. Chairman, thank you again. I'll be happy to answer any questions you have.

ABKOWITZ: Thank you, Bob. We'll start with Board questions. Dan Bullen.

BULLEN: Bullen, Board.

Actually, Bob, I just have a couple of quick questions. I was intrigued by the, and I know you're not a constitutional lawyer, so you don't have to answer constitutionally, but the claim that it's a new law with the approval of the House vote and Senate vote, Presidential signature, isn't that just, and I'm going to be wrong here, it's either the Nuclear Waste Policy Act or the Nuclear Waste Policy Amendments Act that laid out the process whereby that selection was made? Was it the Amendments Act in '87?
LOUX: Actually, it's both of those.

BULLEN: Okay. But isn't that like an old law, and aren't we just following through with an old law, not setting any new laws just because they did what they said they were going to do?

LOUX: Well, it's a concept that we find kind of difficult to really get our hands around. Anyway, I think that the issue is difficult for us to kind of see some logic in it. But to actually rely on the statute that puts in motion all of this process, including calling for the Congressional debate and vote, and claiming that because of that, everything else in the Act is superseded, I think is going to be a difficult concept to sell to the courts at any rate. But, I agree, it's highly illogical.

BULLEN: Thank you. That's the first I heard of it. The other question I have is in your handout, and maybe I'm just trying to get the right semantics here, because we hear numbers like 175 to 200 total shipments, and then you cite the 175 shipments on your Page 5, and then farther down, it looks like, you know, as few as 13,500 shipments total, about 355 a year. If I divide that 355 by three and call a shipment three containers instead of one container, are they kind of the same numbers? I'm just trying to get the numbers to match here. So, is the definition of a shipment a little bit of semantics, or what
am I reading into this?

LOUX: Well, I think you're right. It is semantics. I mean, math is not my strong suit, so, I mean, I won't do the math. I'll trust yours on this one. But my belief is that that's relatively close. In order to achieve those, it's how you define a shipment, whether it's one container and one vehicle, or whether it's a whole train. I mean, I think one of the opponents in Nevada recently said in order to achieve this, you'd need a dedicated train that would really stretch from, you know, New York to Chicago, and to count that as one shipment, if you could do it all with a dedicated train. So, it's all in semantics and definitions, you're correct. So, you can use these any way you want, as we've written as the Secretary has done it.

BULLEN: Bullen, Board. One last comment, and just a suggestion.

With the upgrading of the studies that are going to be done for each of the reactors, which is what we heard, I mean, they basically stopped analysis in about '94 or '95, the DOE stopped analysis of what it's going to take to get fuel from sites, and I know personally that some sites have been upgraded because they had to put in dry cask storage, so they got bigger cranes, or they may have rail access to bring the casks in, I guess I would just suggest or encourage that, I'm sure Bob Halstead will be a busy guy after the happens,
1 but encourage that your numbers get updated with the latest
2 and greatest that come out of the study that DOE is going to
3 pursue relative to the current state of the art in 2003 as
4 opposed to the 1994, '95 data.
5
6 So, I guess I'm assured that you'll do that. I
7 just wanted to get on the record that, you know, as you make
8 these kind of comments, everybody talks from the same set of
9 data. It makes it a lot easier for us to work on it.
10
11 LOUX: It is difficult to do that. I mean, for example,
12 in the EIS, DOE acknowledges that in 2002, that 25 of the 72
13 power plants had not rail capacity. We think that that
14 number probably could be as high as 32. But nonetheless,
15 those are sort of in the ballpark ranges of sites that don't
16 have access currently. The only way to get that material out
17 of there is through barge or heavy haul, both of which you
18 know have logistical problems associated with them, not that
19 it's impossible, but the kinds of things that Steve was
20 talking about I think are going to come into play.
21
22 And it seems to us that the earlier, as opposed to
23 the later, that you get in and involve communities and states
24 in these decision making issues, the better chances of
25 getting them resolved in a time frame that might be
26 productive. Holding onto this information and not going out
27 and doing these kinds of things by the Department I think
28 only increases the odds that they are not only going to be
logistically very difficult, I think they're going to increase the odds of legal challenges in other places, and have the same sort of problem that Steve was suggesting that was going to happen about well, then, how do you get it there, what are the options that are around.

The fact that DOE has really done none of this is in some sense surprising, in that, you know, the advertisement has been that all of this is really altogether already. And maybe I missed something in this morning's presentation by Jeff Williams that maybe there is something that's very comprehensive in nature and just ready to come off the shelf. But we haven't had any input into it, nor seen it. So, we've been hearing the same promises about a plan and all of these things for a number of months, and really haven't seen any. And I don't, as well, know the reason why.

BULLEN: Thank you.

ABKOWITZ: Okay, thank you, Dan. I have a couple questions, Bob. The first one is that we heard earlier today that the DOE has had in place and plans to use in the future the Transportation External Coordinating Committee Working Group, and I understand that the State of Nevada has been represented on that committee. What has been your experience as a stakeholder, and how do you view that mechanism in terms of an opportunity for constructive input in the future?
LOUX: Well, I can't speak for Mr. Halstead, who obviously is the one who attends those and has been involved, and I don't think the problem is necessarily with the forum. It's really with the kind of information that we're not getting, the kind of involvement in making decisions that you would expect, someone wanting to embark on a program of this magnitude would want to get input from all these other stakeholders that are involved. So, I don't think it's a fault with the process or the mechanism. It's really a fault with actually the information not being provided, and the lack of planning that's going on.

ABKOWITZ: Okay, thank you. The other question I had for you is has the State of Nevada, or what has been the extent of the State of Nevada's experience with the WIPP program, and what are your thoughts on how that's working?

LOUX: I can tell you that we've been involved in this process for close to 15 years, I would guess, with Western Governor's Association and the other states that are involved. And I think that our overall view is that the planning exercise, the involvement of the states was a fairly productive and helpful exercise, not only for the states and Governors, but certainly for DOE as well. And I think all of that, DOE would argue and agree, I guess, that in fact it was helpful to them as well.

The problem we see now that a lot of the
commitments that were made, a lot of the very hard fought concessions and issues that we hammered out with DOE over those years, sort of one year or two years of successful shipping took place. Now, they're moving into sort of backup many of those things, and remove them from the system.

Primarily, they say for cost reasons, there's not a need to do these things anymore. But there's a movement away from the testing protocols, the other kinds of things that the states agreed to with DOE.

And almost in every one of these areas, and I can provide you, not here today, but later, a real detailed accounting of all of these areas that DOE has retracted on once they had an initial shipment or two, or even a year or so, all of a sudden, well, we know what we're doing now, we don't have to really do--this was only extra-regulatory to get you guys on board, is the feeling, and now we're on board and shipping, you know, we really don't have to pay attention any longer.

So, our experience has been mixed. Initially, it was very positive. We think we hammered out some very, very productive issues with DOE and the rest of the states, and I think it was well coordinated and worked very well to get these initial shipments made. But DOE since then has really backtracked.

ABKOWITZ: Thank you. Dick?
PARIZEK: Parizek, Board.

Does your office have any involvement with the 9/11 issues in terms of review of transportation of the hazardous material, and so on, or is that something you're just sort of monitoring?

LOUX: Well, the State has an emergency management department that is primarily involved in issues other than the radiological ones, and my belief is that they have been involved in some of the planning that's been going on generally with all of the states and the federal government.

But as it relates to reviews that are ongoing, for example, by the NRC in terms of their review of all these issues, we've had no involvement whatsoever. We've had no input into that process, and not been asked to.

As I said in my talk, we've had a petition for rulemaking, in some ways, almost forecasting some of these events that have taken place since 1999 into the Commission, and their response about why nothing has been done with that petition is that it's been consumed within their own internal review of all these security and safeguard issues. But much like DOE, I don't think any of those things have come out the door yet that we're aware of, and have not seen how they've been treated at all. So, I'd have to say that, no, we have not had involvement in any of those issues.

PARIZEK: One other question. Do you interact with the
tribal concerns, or are they on their own? How do you deal with tribal concerns?

LOUX: We interact pretty closely with the tribal concerns in Nevada, at least attempt to, on an ongoing basis. As you might recall, early on in the program when the State was actually getting funding, which may come to an end here fairly soon, we were sharing a lot of those resources with the tribal governments in Nevada itself, making sure they had—in fact, that was the only way they could be involved in the program, attend meetings, and make their views known. But we’ve been attempting to work with the Nevada tribal organizations very closely.

ABKOWITZ: Okay. Any other questions from Board members, consultants, Staff?

(No response.)

ABKOWITZ: Bob, thank you.

LOUX: Thank you.

ABKOWITZ: I did want to announce that if anyone would like a copy of Bob's prepared statement, if you'll kindly place your name on the list with Linda and Davonya in the back there, we'll make sure that you get a copy sent to you. Okay, the next perspective that we're going to hear about regarding the transportation issue is going to be a representative of the views from corridor states, and we're pleased to have Jim Reed making that presentation today.
Jim is with the National Conference of State Legislatures. He actually directs the Transportation Program at the National Conference. And for those of you that may be unfamiliar with the organization, it's a nonprofit, bipartisan organization, and is regarded as the nation's leading authority on state legislative issues.

The Transportation Program assists states on numerous public policy issues from traffic safety to radioactive waste transport through expert testimony, responses to requests for information, and in-depth research and analysis.

Mr. Reed is the author of dozens of policy briefs, reports, articles and books on various transportation topics. He received his master's degree in public affairs from the LBJ School of Public Affairs at UT, which is University of Texas, not University of Tennessee. And his undergraduate degree in political science from Colorado College.

Jim?

REED: Good afternoon, and I thank you, Mark, and members of the Board, for the invitation to come speak today. I'm really glad that the Board is interested in transportation issues.

Mark mentioned briefly what NCSL does. Let me just reiterate a couple of things. We're a Denver based nonprofit, bipartisan research and information organization.
We support the efforts of all 50 state legislatures and the
U.S. Territories and Puerto Rico and Washington, D.C., and
that includes about 7,500 state legislators and approximately
30,000 legislative staff. We provide policy analysis and 50-
state information on a wide variety of public policy topics,
everything from abortion to taxes.

We organize educational forums on an annual basis
to get our constituents together with themselves to discuss
issues, and also with federal officials and also experts in
various fields of endeavor. And we also provide input to
Congress and federal agencies on state concerns. And
anything we bring before Congress would be voted on by a
super-majority of the states that come to our annual meeting
every year. So, a 75 per cent majority is necessary for an
NCSL policy to go forward in terms of influencing Congress.

We have had a cooperative agreement with DOE for a
number of years. In 1996, several of the cooperative
agreements were cut off. We remained as one of the few that
were left, although our funding was reduced fairly
dramatically. And we're also a member of TEC, the
Transportation External Coordination Working Group.

What I'm going to do today is talk briefly about
the federal role in spent fuel transportation safety, then
talk about the state role, relate to you some state concerns
and some recent state legislation, talk a little bit about
Briefly, the federal government, of course, is preeminent in regulation, but the state role is recognized in terms of protecting public health and safety. Three primary acts are involved here, The Hazardous Materials Transportation Act, the Atomic Energy Act, and the Nuclear Waste Policy Act. And as we've heard previously, the spent fuel transportation is regulated jointly by the NRC and the DOT.

As far as what the DOT does, just a brief overview here, regulates shippers and carriers of all HAZMAT, including radioactive materials; regulates the conditions of transportation, including routing, handling, storage, vehicle requirements, driving and parking, incident reporting and driver qualifications; and also sets requirements for marketing and labeling packages and the placarding of vehicles.

The NRC establishes shipping container requirements. We've heard something about what the NRC does here today. Certifies cask designs; sets safeguard requirements for sabotage prevention; and also requires pre-
1 notification to states when spent fuel shipments are on the road; and also approves routes for spent fuel shipments.

Under the NWPA, the DOE has these duties. Taking title to the fuel at the reactor; providing casks for transport; arranging for the shipments to occur; managing the transportation contractors; assisting state and local governments in responding to transportation emergencies; and providing technical and financial assistance to states and Indian tribes for emergency response training under Section 180(c) of the Nuclear Waste Policy Act.

A couple other requirements I wanted to mention. Place of origin inspections are required for all highway route controlled quantities of radioactive material by state or federal officers. That's required. And spent fuel, of course, is an HRCQ. And, in addition, the USDOT specifies routing standards by which states undertake a routing exercise, and comes up with preferred routes.

DOE is required to comply with all DOT and NRC transportation regulations, and as stated, they will comply with all applicable state requirements not preempted by federal law. And this is something that we do take seriously, and hope that DOE continues to hold that view.

What do state and local governments do in this area? Federal law and regulations dominate the field, but here's some of the things states do. They issue safety
permits and registration credentials. They enact traffic restrictions that apply to all traffic. They do designate preferred routes. They inspect vehicles, drivers and cargo. They adopt and enforce federal and/or consistent requirements. They impose reasonable transit fees to finance enforcement and emergency response preparedness. There are notification requirements when spent fuel comes through. And, of course, they enforce general traffic safety regulations.

Beginning with some of the state concerns, a key concern is that there's going to be insufficient funding to provide adequate emergency response, planning, incident response, and accident prevention for the expected increase in future radioactive waste shipments. Another concern that the states have generally is the federal preemption of state requirements and funding sources would interfere with the ability of the states to do what they feel necessary to protect public health and safety, and what's required under state constitutions.

One example here is there is, in federal law, the requirement that the federal government have a transportation safety permit for four types of HAZMAT, including spent fuel, and that's under the Federal Motor Carrier Safety Administration's auspices. To date, that requirement has not been fulfilled, which is fine with us, because the states
already have a fairly extensive system of transportation permits. There's talk now that that permit is going to come into force with some of the new security concerns. So, we're concerned about whether or not the FMCSA will say, well, your state permits are not going to be applicable now. We're going to enact this federal permit for these, and it's for four types of HAZMAT, controlled quantities, some of the poisons, some of the explosives, and there's one other one I can't remember. Anyway, that's a specific example, and that's an overall concern of the states.

Another one is unfunded federal mandates. Where the federal government creates a burden, there's a concern that the state would pick up the tab, state and local governments. So, in the case of DOE shipments, the states are pleased of course that Section 180(c), which does require the DOE to provide funding, but there's concern about a variety of activities that the states will have to conduct if these shipments come down the pike in the quantities that we're talking about.

The second point on this slide is insufficient ongoing consultation. And this does stem from DOE's decision to really drop a lot of the consultation in 1996 when the focus was put on looking at the Yucca Mountain, the repository in particular, not putting so much emphasis on transportation. So, we felt sort of an information--a lack
1 of an ongoing consultation mechanism there. The TEC has continued to meet, but it's gone to two meetings a year, where previously it was more than that. I think it was up to three at one point. We're hopeful and looking forward to DOE's coming back a more substantial consultation role in the future.

Of course security concerns are on the forefront. States want to minimize the risk that travelling spent fuel casks could become targets for potential terrorist attacks.

I wanted to mention before we move to the next slide a couple of items that have been brought up that I didn't put on these slides, but I will before I make the next presentation. Full-scale testing of casks, NCSL is on record of supporting that as a way to increase public confidence, as Steve Kraft mentioned in his remarks. So, that's one item that has been a concern.

Another one is dedicated trains. NCSL also, by vote of the states, believes that rail is the safer approach, and that dedicated trains would in fact give an extra measure of safety. So, we're on the record on both of those things and I wanted to mention they're not on the slide here.

As to routing, there's some specific concerns. The need to know routes. States in general want to know routes earlier to begin necessary preparations. Secondly, the states believe DOE should play a more central role in route
selection. And, actually, to that end, there was a TEC document a few years ago on routing that we thought was very constructive that talked about a process that DOE would use in the routing process.

Obviously, the DOT regulations set the parameters, but there's a fair amount of I guess other activity that can take place to work with localities and states in finding the right routes.

And then the third point there is the need to minimize potential routes so that resources can be focused on a smaller area, so the resources can be used more effectively. And some of the discussion earlier was the balance now between security and information, open information, and if everyone knows that this is the only route where a spent fuel cask can go, that's potentially information a terrorist might use. So, in general, though, this stands that the number of routes ought to be minimized.

And I wanted to bring up the routing paradox, as I've called it. Routing decisions often present a paradox for public safety officials. Routes that minimize radiological risk are usually through sparsely populated areas, where few might be injured during a transportation accident, but where emergency response might be more difficult and inadequate, perhaps. The well equipped emergency response teams are generally in urban areas,
populated areas, where you would have a quicker response, but you would also have a greater impact on the population for some kind of an incident. So, it is something of a paradox that state officials have to look at in conducting routing exercises.

As far as state legislation, the states have been active in this area for a number of years, and I've counted up some 500 laws that relate in some fashion to radioactive materials transportation. And this is just a listing here of some of the more popular, I guess, or some of the areas where states have been active. Transportation, permits, incident notification, routine, inspection and enforcement, rail regulation, and insurance and liability. And these are some of the numbers of states that have addressed these through legislation, just to give you a sense of where the states are on some of these topics.

I want to focus a few remarks on permits, because in looking at these issues and dealing with the states, the transportation permit, the safety permit, is I think a key tool for ensuring transportation safety. The permits generally involve an evaluation of a motor carrier's ability to operate safety, and includes an examination of past history, past safety compliance, financial responsibility, inspection record, and a variety of compliance factors. So, it is, I think, an important tool for states to use in this
1 regard in terms of ensuring safety. 
2 These next three slides I've just kind of listed 
3 the state and the agency that does it in each state, and I'll 
4 quickly go through these. As you can see, there's 27 states 
5 total, and I guess at issue here is that it's--at the bottom 
6 there, you can see that there's 27 total. In six states, the 
7 Public Utility Commission does it. In seven, it's the 
8 Department of Transportation. In two, it's the Emergency 
9 Management Agency. In five, it's the EPA, Department of 
10 Health, Department of Revenue, State Highway Patrol. So, 
11 it's somewhat of a mixed bag as far as how a state approaches 
12 its own individual transportation permit. 
13 And to that end, I think there's been--well, 
14 there's been some--we've heard from industry that there's 
15 confusion. I get a lot of calls because I've compiled some 
16 of these lists, and they want to know which states have what, 
17 and what agency does it. And I think we've been helpful in 
18 that regard. But I do think it could also be easier, and I'm 
19 going to talk about a uniformity initiative here in a minute. 
20 To give you a sense of what a permit might require, 
21 here's what Oregon requires. It's I would call it one of the 
22 more stringent permits. They want to know a lot of 
23 information about what's going to go on with the permit, 
24 what's going to go on with the shipment. And these are some 
25 of the many things they ask for. They want to know routes,
the estimated radioactivity. They want to know the safety record as far as past violations, proof of insurance, proof of Federal Motor Carrier Safety Administration's satisfactory rating as a carrier, and a variety of things. They pre-inspect the vehicle, and so forth.

I put this up to show you that these are some of the steps states have taken, and I think many states believe these are effective measures to ensuring transportation safety.

Here's a list of just a couple other things related to radioactive and spent fuel shipments. Alabama requires a 55 mile an hour speed limit for placarded HAZMAT. Colorado has a number of requirement. Port of entry inspections are required. Illinois inspects and escorts all high-level waste shipments. And you can see the rest there. These are the areas where states have some ability to take additional steps in addition to anything the federal government has required.

I want to talk just briefly about fees. I'm not going to go through all these numbers. But the states do assess fees to support the activities related to transportation as far as emergency response, emergency planning and accident prevention, the various things they do, inspections, and so forth. And these are some of the fees that apply specifically to spent fuel, high-level waste, and highway route control quantities.
Also, there's a few that say LLW up there for low-level waste. I've included those as well. But this is to give you a sense of quite a bit of variation. Illinois has, and a couple, Mississippi, have a pretty high fee, $2,500 per cask on a truck. Others, you know, it's a much more modest fee of $25 per trip.

This is basically to say states have done what they feel like they should do as far as collecting fees. And a number of the states have enacted the $1,000 fee per shipment, has become I guess not a standard, but it's been a new target. Some of the newer legislation we've seen is the $1,000 fee. I'm thinking of Indiana a couple years ago. In any case, these fees are used to generate funds for the state, and you've probably heard your state and every other state, except Wyoming, actually Wyoming is the only state that really doesn't have any financial problems. I'm not sure why. I guess they don't provide any services. I hope no one is from Wyoming here. I live in Colorado, our friendly neighbor to the north there.

But because of all the budgetary problems, states are looking for every dollar, and so a lot of these funds are being scrutinized for other uses. But I should note under the Hazardous Material Transportation Act, fees and monies collected for HAZMAT purpose need to be used for a HAZMAT purpose. You can't use the money for others, and industry is
very diligent in looking after the states and asking for an opinion from USDOT if that's not the case.

I mentioned kind of the myriad of permits that are out there. There is an effort underway for permit uniformity. It was under Hazardous Materials Transportation Uniform Safety Act of 1990 created a working group, and that working group was asked to create uniform forms and procedures for state and local governments that permit and register motor carriers of HAZMAT. And they've done their work. They submitted two reports to the Secretary of Transportation in '93 and '96. And I'm going to talk just briefly about what some of the elements are.

It covers all HAZMAT, including radioactive materials, that require a placard, and it does include manifested hazardous waste. States don't have to adopt this program if they haven't already adopted a program. At this point, they don't have to adopt it at all. But at some point, the Federal Motor Carrier Safety Administration will issue regulations to require this.

Basically, it's a base state program where a carrier would be issued credentials that are valid in all the states that participate in the program, and that base state would collect and distribute fees, and would do all the assessing of the carrier. Then that carrier could operate in all those states.
Uniform forms and procedures are used. It's a reciprocal system. But the states keep their right to do their individual enforcement. There's an accreditation process and peer review to make sure that the states are all doing it the same way. And a carrier would have to meet the requirements of the state with the most stringent program. There's three levels, which I won't get into today. The status is that seven states are members of what's called the Uniform HAZMAT Alliance, Illinois, Michigan, Minnesota, Ohio, Oklahoma, Nevada and West Virginia. And the Federal Motor Carrier Safety Administration is currently looking at whether they want to issue regulations to make it a standard for other states.

As NCSL, generally we're not in favor of federal mandates, but this is a program where many states came together and said this is--it's a compilation of best practices. So, we feel like it's something where we can get additional safety enhancements through a uniform approach, more compliance on the part of industry.

The benefits are that there's a focus on safety fitness. The states perform background reviews of motor carrier safety records. There's a uniform approach to fees and applications. There's a convenience factor certainly for the carriers. It's a streamlined process.

For states, the regulatory burden is spread out.
If each state isn't doing their own permit, if you have a base state doing it for several states, those other states don't have to do it, except for the carriers in their states. Basically, you do it for the carriers that are domiciled in your state. And there's also some potential security improvements that we're looking at in the new environment here.

I won't spend any time on this, but basically the states continue to pass legislation. Here's a few bills that are pending this year. Illinois is looking at raising its fee. New Jersey is going to try to establish a 55 speed limit for HAZMAT trucks. Virginia passed a study last year, they're going to do a study of transportation of nuclear waste, and they're also looking at implementing some of the USA Patriot Act language, which requires background checks for HAZMAT drivers.

Okay, some of the pieces, the WGA Transportation Safety Program for WIPP, we've heard mention of that, and here's some of the specifics of it. It requires, under an agreement between WGA and DOE, highly qualified and specially trained drivers. There's rigorous independent inspections of vehicles. It's under the Commercial Vehicle Safety Alliance's Enhanced Radioactive Materials Standard. There's careful monitoring of road and weather conditions, and travel is restricted when warranted. There's an identification of
safe parking places along routes, provision of advance notice of shipments to states and monitoring enroute through a tracking system. And medical emergency preparedness has been established along the way.

Mutual aid agreements have been set up between states and between jurisdictions to ensure swift response. Emergency response plans have been set up along the way. Equipment has been an issue and adequate equipment has been purchased and maintained along the route, and periodic training and exercises for emergency responders is part of this plan. So, when you hear talk of the WGA model for WIPP, these are some of the elements of it.

We heard what Bob Loux had to say about how it's going forward. I think certainly as initially put together, it was a very positive thing for both the states, and I think DOE.

Some of the challenges for the states is ensuring an effective system to safely handle an anticipated increase in radioactive material shipments. Certainly there's a need for better inter-governmental coordination of emergency response to accidents.

I think that if more states designated routes, it would improve the safety of radioactive and HAZMAT shipments. Only ten states have designated alternative routes now. So, that means if it goes through a state that has't designated
its interstate highways and interstate bypasses, those states that have chosen to do their own routes, it's somewhat of a painful and drawn out process, but that gives the state a little more, I think, control over where those shipments are going to go.

In Colorado, for instance, the State Patrol doesn't want it going through the Eisenhower Tunnel, which is a one and a half mile underground tunnel that connects the ski areas to Denver. So, right now, HAZMAT has to go up over the pass, which is not all that--it's not a great alternative. Actually, the State officials in Colorado would rather see it go through Wyoming. Sorry, Wyoming. Interstate 80 instead of I-70. But, those are things the states work out together.

The states I think would like a more influential role in rail safety, although a lot of that is preempted by the Federal Rail Safety Act.

And, finally, I've talked a little bit about funding, and the states certainly want to maintain their ability to have fees and to raise money as they need to to support public health and safety.

Okay, when I talk to state legislators, I do go through some guidance and some ideas in terms of evaluating whether what they're doing is effective or not. And these are some of the steps quickly. Determine if your state has a disproportionately high occurrence of HAZMAT incidents,
including radioactive, and if these incidents are trending higher over the years. If they are, then you need to figure out why. The Research and Special Programs Administration of the USDOT is a resource for that.

Assess any developments that may increase shipments down the road, obviously, Yucca Mountain, potential shipments to Yucca Mountain and foreign fuel shipments, other radioactive shipments.

There's a methodology for doing a HAZMAT Commodity Flow Study to determine how much and what is going through your area. So, that's something I recommend that states do, and a number of states have done that.

Determine whether your state emergency preparedness is adequate for a radioactive materials transportation incident or accident, and define what resources might be needed for improvement. Work closely with the regulated industry and citizen safety groups to reach agreement on reasonable approaches. Industry, of course, seeks to protect public health and safety by avoiding accidents. We've heard that obviously the rail industry, the nuclear industry, don't want to have accidents, and so they're a positive influence in working on these issues.

In terms of preemption, have a sense of what might be preempted, but also don't be afraid to look at unique conditions and push the envelope, I guess, in places where
It's not clear whether a federal requirement would preempt a new state requirement.

And, finally, what I urge legislators to do is to fully fund enforcement activities that promote HAZMAT and radioactive materials transportation safety.

And that's it. If you have any questions, I'll be happy to visit with you.

ABKOWITZ: Thank you, Jim. In terms of the relationship between different states on this matter, have you had any discussions with Wyoming that have been productive?

REED: I do kid Wyoming.

ABKOWITZ: I was just teasing. This is Abkowitz, Board. Let me ask a couple questions, and then I'll hand it off to my colleagues.

I'm getting the impression, after listening to the presentations this afternoon, that there's consensus, if not unanimity, amongst the stakeholders that they would rather know about mode and route decisions sooner rather than later. It's almost reached a point where it's if you really want us to put together a system that we can have some confidence in, let us know what it's all about so we can start to focus where we need to focus. Is that a reasonable assessment from your perspective?

REED: Yes, it is. Yes, the states have wanted that for some time. Give us some early indication so we can start
preparing, counter-balanced of course by the issue that we
don't know when, you know, we don't know when these shipments
are going to start. You know, it's a long ways down the
road, so you don't want to use up resources now. But the
sooner we know, the better, and I think we're going to keep
putting that pressure on DOE.

ABKOWITZ: Okay, thank you. The second question I
wanted to ask you is Bob Loux mentioned that the WIPP
experience from his vantage point has been predominantly
positive, but he kind of constrained that observation based
on over time, there seems to be perhaps some diminishing
commitment. Is that an accurate assessment of what some of
the other states have been concluding as well?

REED: I can't address that specifically, because I
haven't really talked to some of the state officials in the
last few years about that. So, that was new information for
me as well. I'm going to talk to some of our folks in New
Mexico and other states. I really haven't had that
conversation.

ABKOWITZ: So, it's not something that's been coming to
you in the form of active feedback?

REED: I have not heard that in terms of active
feedback. Again, though, because of some of the diminishment
in our cooperative agreement funding, we really haven't had a
chance to get together our group for a while here. So, I'm
1 not sure.
2 ABKOWITZ: Okay. And then one final question. Could
3 you articulate perhaps in a little bit more detail the
4 challenges of properly preparing the emergency response
5 community along transport routes, and, you know, whether you
6 have a recommended strategy for how these various states can
7 come up with kind of a consistent, uniform way of ensuring
8 that should an incident take place somewhere along the route,
9 that there is adequate coverage within proximity?
10 REED: Today, I'm not prepared to speak specifically to
11 that. The TEC Group has actually spent a fair amount of time
12 talking about that, and they did have a subcommittee I think
13 looking at that. I was not involved in that myself.
14 I guess part of my thought from a state legislative
15 point of view is that the legislators tend to give broad
16 guidance and then let the emergency management folks figure
17 out what they need to do. So, I personally haven't paid a
18 lot of specific attention to that, but I think it's an
19 excellent question and I'd be happy to look into it a little
20 more. But, today, I don't have anything specific to say on
21 that.
22 ABKOWITZ: Okay, thank you. Dan?
23 BULLEN: Bullen, Board.
24 Just a quick question about the state fees for
25 permits for the transport of waste. And I guess it's sort of
a paradoxical question, because if the DOE is going to pay
fees for emergency responders through 180(c) of the Nuclear
Waste Policy Act, and then be charged a fee to actually
train emergency responders, aren't they being, or is that
like double taxation, or did I miss something there?

REED: You heard about the state budget problem?
BULLEN: Well, I understand the state budget problem.
But if the money has to be spent to train emergency
responders for the shipment, does DOE get charged twice, is
the question?

REED: It's a great question. And, actually, it has
come up at TEC, and there was a working group looking at this
very issue. Does DOE reduce a state's 180(c) funding based
on what it's collecting with this other hand? And I don't
think the question has been resolved, well, from a state
point of view.

BULLEN: Any money is good money.
REED: It would be nice to have both. Actually, I mean,
it's the carrier that's going to be paying the fee to the
states.

BULLEN: Right.
REED: And then they will bill DOE.
BULLEN: Bullen, Board.

But the carrier will be DOE, as I understand,
unless it's all privatized. I guess the question also, I'm
looking at my state, which is Iowa, and I'm happy that we shipped our fuel before they enacted these laws, because we didn't have $1,750. And the other irony, all of these fees can actually be requested for waiver, and we did that when we shipped to Savannah River. The only state that didn't waive, if you want to pick on a state, is our neighboring state to the east, Illinois. They made us pay. So, just for the record there, you can actually get them waived if you're like an educational institution.

But the final question that I have, and this sort of relates to the emergency response training and preparedness, is it your general consensus from the states that are involved that there's a deep concern about the ability to respond, or do you think that they're just waiting for the right time, as Steve Kraft mentioned, you know, three years before you start training the volunteer fire departments and their emergency responders, because you don't want to have it done too soon and have that training be, you know, obsolete? What's your consensus or opinion or feeling that you get sort of, you know, nationwide, I guess?

REED: You know, it's hard to, unless we get a vote at one of our meetings, it's hard to often speak for a consensus of state legislators. They're, of course, people that do something else. Only ten states have full-time legislators. The other 40 states are citizen legislators, so they're
1 doing something else. And trying to say what the opinion of
2 state legislators is, it's a dangerous thing, unless we've
3 had a vote on it.
4 But I get two senses talking to folks. One sense
5 is that given what I told you about the permits, and that
6 generates some funding, that gives us some idea that these
7 carriers are safe, there is some opinion that we're going to
8 be fine, that these shipments are going to be run safely,
9 we've got an adequate infrastructure in place. Yes, we do
10 need some additional funding to beef up some of our emergency
11 response, but we've got a basic system in place that's going
12 to work.
13 But another vein, and I can't really categorize the
14 strength of those, is no, I mean, we're in trouble, if we
15 have all these new shipments, we're going to be overrun, and
16 we definitely need a lot of help. So, there's really a
17 couple points of view on that.
18 There was a study that was very useful that NRC did
19 in 1990 on emergency response capabilities, and unfortunately
20 they haven't updated it since then. But I found it very
21 useful in 1990. And it turned out about a quarter of the
22 states are in really good shape. About half are so so, and
23 another quarter are in pretty desperate straits. So, I guess
24 that's why I kind of give the two-handed answer.
25 BULLEN: Thank you.
ABKOWITZ: Thank you, Dan. Priscilla?

NELSON: I may be having my National Science Foundation hat on, and it does seem out of it a little bit. Nelson, Board. I mean, it seems to me that if we look on into the future, we're looking not incrementally into tomorrow, but a lot of shipments taking place a lot in the future, and ciber infrastructure and communication and all of the aspects of information exchange are just going to become even more important. State boundaries are just going to be major continuing problems.

So, I'm wondering to what extent in developing an integrated nationwide kind of, without barrier, security aspect, is your organization geared in that direction, looking there so that they're actually seeing a way of maybe voluntarily having some information exchange, communication systems, agreements so that we actually have a seamless approach to this rather than heavily seamed, the way it seems now?

REED: That's a great question. A couple things. One is as an organization, yes, we're really looking ahead and working towards that. An example of what we've done recently in a different field is you know about the internet sales not being subject to state tax, state sales tax, except on a voluntary basis. Well, there's an agreement now that most of the states came to with, and including some of the big
concrete and mortar retailers, like WalMart, to set up a
third party that would, you'd click a button on your internet
and go there, and it would calculate your tax. So, the issue
is states are losing money. They need to capture this. I
guess that's the theme here.

So, I guess in terms of a seamless system using
technology, there's an example. I think the permit
uniformity thing I talked about is a key example. Once we
move a little further long, I mean, there are a number of
organizations, both public and private, looking at
notification systems that are automatic. So, if a truck goes
off the road, you know, it's automatically sent back to the
control center, and someone responds immediately. The driver
doesn't have to be conscious and make a phone call. There's
lots of things like that that are becoming more seamless.

I think the idea of uniformity gets to your point,
because, you know, why stop a truck at every state line. If
it's already been credentialed in Colorado, let it go on
through to, you know, Iowa, or wherever it's going, without
stopping at every state border and requiring new credentials.
I think that's what that uniformity effort is about, in
part. And I think taking advantage of a lot of the
electronic and internet and computer capabilities going
forward is one of the things that a lot in the industry and
the states are looking at.
NELSON: Just a followup. I believe that as soon as Homeland Security figures some things out, that that will be coming out, this seamlessness of information, and it can change the playing field for many of the things you've been talking about today very quickly.

REED: I agree. And I think, you know, in some ways state boundaries, boundaries of any kind, political boundaries, are becoming old fashioned. I mean, as a state organization, it's something of a paradox. I mean, every state has its issues and its jurisdiction and its identity as a state, and that's not going to go away. So, we need to figure out how to work around that and get beyond some of the artificial reasons that block progress between states.

But, who knows, I mean, you know, our federal system has survived all these years, but, you know, changes are perhaps coming. You see a lot of local governments consolidating, for instance. You know, Miami/Dade County, they're coming together seeing the overlap. I don't know if states are going to do that or not. I mean, Texas and its constitution could divide into five states, so it would be going the opposite direction. But there's been talk of folding North and South Dakota in together and calling it Dakota. Anyway, I think it's a point well taken.

ABKOWITZ: Okay. Has there been any talk of Wyoming becoming part of Colorado?
REED: Wyoming is a beautiful state. Let me defer to Bob Luna.

LUNA: Bob Luna, consultant to the Board.

I wanted to--this has been covered at least twice, but I wanted to ask Jim if he has a route to or some understanding of what the definition of an adequate emergency planning system would look like? I mean, you've mentioned an adequate emergency response system three or four times, but there's not much definition associated with what an adequate system looks like. And I know you talked about TEC having looked at it once, and I've seen some of those discussions. But I don't think they went very far. But it seems to me if DOE is going to fund an adequate system, some kind of definition might be in the works that makes sense that people can agree with.

REED: I do agree with you on that, and I'm going to work on that. I didn't come prepared today with that.

LUNA: The other question I wanted to ask was what in your mind constitutes a full-scale testing program that makes sense?

REED: Okay, well, essentially that--I mean, as it stands now, you have quarter and half scale tests and computer simulations. I think the idea of a full-scale test would be for new designs. I don't think there's any talk of going back and having old designs re-certified. Although,
you know, we haven't really had this discussion in our group about some of the specifics.

LUNA: Well, let me rephrase the question.

REED: Okay.

LUNA: There is one group that I've heard from which wants to have a full-scale test to the conditions that the NRC certifies casks to, that is, 30 foot drop, 30 minute fire, one yard drop onto a pin, and emersion as the four principals. And there is another group that wants to have a set of tests which are extra-regulatory and more realistic to try and understand the overall how close you are to perhaps the failure threshold. Where do you think the NCSL is on some issues like that?

REED: Okay. When we originally passed this resolution, it was back in the early Nineties, the assumption then was that it would be the existing NRC tests, that the full-scale test would be those tests, and it wouldn't be--I think some of the talk of extra-regulatory is a newer development since we passed our policy a number of years ago. And we really haven't addressed that specific part. But it would be the existing NRC tests.

ABKOWITZ: Okay, thank you, Bob. And thank you, Jim. We're going to take our final recess for the day, and we will reconvene back here in ten minutes. I'd also like to ask the individuals that will be part of the local
1 government panel if they could show up here next to the
2 podium about five minutes from now so we can get organized
3 for the panel session, I'd appreciate it. Thank you.
4
5 (Whereupon, a brief recess was taken.)
6
7 ABKOWITZ: We're entering the last segment of our agenda
8 for today, and the venue is going to change a bit from the
9 way we've been conducting things up until now. We're going
10 to hear from a variety of different local governments from
11 the State of Nevada, and it's going to be kind of conducted
12 in a formal presentation, followed by panel Q and A type of
13 format, and then following that is when we will invite public
14 comments from individuals wishing to offer their comments on
15 the record.
16
17 The views of local governments activity is going to
18 actually include representation from five different counties.
19 On our program today, we have Les Bradshaw from Nye County,
20 Englebrecht von Tiesenhausen from Clark County. Pinch
21 hitting for Kevin Phillips will be Paul Seidler representing
22 Lincoln County. We have Abby Johnson from Eureka County, and
23 George McCorkell representing Esmeralda County.
24
25 I'm going to give you a brief background on each of
26 these individuals, and then I'm going to turn the program
27 over to Les Bradshaw, who has apparently agreed to coordinate
28 amongst the culprits here in terms of who speaks when and for
29 how long.
Les was appointed Manager of the Nye County Department of Natural Resources and Federal Facilities by the Nye County Board of Commissioners in 1998. His primary duties are to manage the County's interests related to public lands, federal facilities, and natural resources issues.

Mr. Bradshaw has an undergraduate degree in geology from Arizona State University, and a Juris Doctorate degree from the Nevada School of Law. And as I mentioned before, Mr. Bradshaw and the other speakers will summarize their concerns about transportation issues related to Yucca Mountain.

As I understand it, Les will actually try to talk about issues of commonality amongst the counties, then talk about Nye County's issues, and then each of the other counties will talk about situations unique to them.

Englebrecht von Tiesenhausen has been with Clark County since 1990 where he is the primary technical specialist for Clark County's oversight of the Yucca Mountain repository program. Mr. von Tiesenhausen is responsible for the analysis and evaluation of technical and geological issues, and their programmatic and policy-related impacts to the County.

He has a Bachelor of Applied Science degree in metallurgical engineering from the University of British Columbia, and a Master's of Business Administration degree
from Pepperdine University. And as I mentioned before, he will be representing Clark County.

Pinch hitting for Kevin Phillips is Paul Seidler. Paul has a Master's in Public Policy from the University of Chicago, and has a 20 year career in the nuclear waste business. That began with a stint with the Illinois Department of Nuclear Safety, and has continued with his own firm today. And Paul is representing Lincoln County today as a consultant to the County on Yucca Mountain issues.

Abby Johnson has worked on nuclear issues for two decades. She's a graduate of Kirkland College in Clinton, New York, with a major in government and philosophy. She first became involved in nuclear waste when testifying at DOE repository guideline hearings in 1983, and has tracked the high-level nuclear waste repository issue ever since. And as I mentioned before, she will be talking about issues unique to Eureka County, and will also try to represent how those relate to the northern tier counties in general that lie to the north of the Yucca Mountain site.

And then, finally, we have George McCorkell, who is representing Esmeralda County. He is also an employee of Robinson-Seidler. He began his career as the Yucca Mountain oversight director--I'm sorry--he's in the capacity of the Yucca Mountain oversight director for Esmeralda County, and he's been in that position for the last three to four years.
Prior to that, actually worked on the Yucca Mountain project for about five years. And George has a B.A. in Communications from Muhlenberg College.

So, that's the background on our speakers. And, Les, it's your show.

Thank you very much. I'm very pleased to be here today, and we appreciate all the hard core people that stayed to the very end. Traditionally, the room clears out a bit about this time of the day on these kind of meetings. But we appreciate you being here, even though some of you have to stay.

Much of what's been said earlier in the day is direct on point with some of Nye County's perspectives. But initially, I want to--these are the colleagues that are here. They've been introduced.

I just want to lay out some of the geographic, the geography of this issue in Nevada. I know in the two days you've been here, you've probably seen some of these maps, and I just want to go through it very quickly. The national picture, the national transportation infrastructure in Nevada, the linkages of that infrastructure to Yucca Mountain, and then go over some of the rail and trucking shipment options that seem to be out there.

All these places, the red dots, and I'm sure you can see that not as well as you should, but the red dots
indicate where the material is now. And, of course, Yucca Mountain out in Western Nevada.

This is the national system of interstate highways in Nevada. The I-80 corridor along the north, and the I-15 corridor along the south, and a number of U.S. highways that cut across various parts of the state. I-50, U.S. 6, U.S. 95, and U.S. 93 are the principal federal highways that are not the interstate system in Nevada.

From Las Vegas, if you just were flying as a crow flies, it's a short distance from that transportation infrastructure out to Yucca Mountain. It's under 100 miles.

From Caliente, which is an entry point for the rail system from the east, or sort of from the northeast, it's, if you just came straight across, if you could, a short distance of a little over 100 miles, or so. And there will be some other people giving you more details on these different routes.

There's routes down from the I-80. You can come off different places, but the ones that have been sort of tagged or identified, well, at least the one off of the--directly north of the Beowawe type area up there, but also I've put on here, you know, there could be yet a shorter access point from along the I-80 corridor if the national--well, if the forces at work, whoever is going to decide this, and you've heard that story today, whoever does this, and
however they do it, there are limited options in Nevada for getting to Yucca Mountain from the national transportation infrastructure.

And from the south, instead of coming off right at Las Vegas, some other place along the I-15 corridor which has both interstate and rail access. By the way, I'm not suggesting all these are in the EIS. These are just conceptual shortest distances from the infrastructure to Yucca Mountain.

And the Jean corridor is another one that could be used. So, along that I-15 corridor, you know, you could buzz into Yucca Mountain from a number of different places, just depending on the politics of the issue, because this is less of a techno type problem than it is a political and a coordination type problem.

This is the Caliente corridor identified in the EIS. Also note that there's another segment of this corridor that would cut down through the test site, through the blue area and the gray area. If that were to happen, if the forces of nature out there would allow that to happen, that would cut off some of that route what I call around the horn, a 300 mile detour, a 320-some mile detour going around if that were the corridor that were selected.

Coming down from the north, that corridor goes parallel to the main basin and range topography in Nevada and
1 could probably be kept fairly flat, no major mountain ranges
2 that we'd have to go over or around. You'd just snake down
3 through the valleys. But that's a long haul, whether it's
4 upgrading the highway system or building a new rail.
5 And this is not in the EIS, but I mean there is a
6 short segment that could come off existing rail that comes
7 down to the Army Ammunition Depot down by Hawthorne, and
8 zapping on down to Yucca Mountain, new rail construction, but
9 that's along the Highway 95 corridor, and that could be done
10 if, you know, the political forces and all the issues having
11 to do with that corridor were overcome. This did not end up
12 in the final EIS because there was just a choice made that it
13 was just too hard, and some other areas would be a little
14 easier.
15 Well, this is self-explanatory. I mean, a number
16 of routes could come off of the I-15 corridor.
17 This is the one that if some of it is by truck, and
18 we've heard that today, that there apparently will be a
19 mixture of truck and rail, or truck for sure, and maybe rail,
20 or something like that, it just depends on how all of us work
21 together over the next decade or so to make a transportation
22 system happen. But, you'll hear from Clark County's view on
23 this. They're not excited about this one. And, frankly, in
24 my remarks on Nye County's perspective, we're going to say
25 the same thing.
This is truck shipments. You know, we saw this around the horn route, a rail could be built around, or if it comes mostly by truck, or maybe it's both, you've got a rail over here and an upgraded highway, and they're sort of parallel, going around the Nevada Test Site and the Nellis Range.

Then yet another possibility coming down, you know, from an entry point off of I-80 up on the eastern edge of Nevada, this one is not in the EIS, but it's, you know, it's a straight shot down. Between Wendover and Yucca Mountain, there's probably, as I can recall now, once you get out of Ely, there's only, let's see, two stop signs, and you can run one of them because there is nobody out there.

And coming up 127 up from Baker, that's not in the EIS, but certainly is a straight shot off of the I-15 corridor.

Okay, the Nye County perspective, I'll just briefly run through. Nye County believes that it has a unique position in this national discussion because of its position as being the end of the track, or the end of the road. Every single shipment is going to come to Nye County. Every single shipment is going to come to Nye County, whether it's rail, truck, carrier pigeon, airplane, whatever it is that is ultimately decided, we've got to deal with every shipment.

And as you can see from the options that I had up
on the screen, they're going to come in from every which way, just depends on what is ultimately decided. And that, as you've heard from the last two or three speakers, seems to be an issue that's still up in the air. So, we have a unique position in that regard, and we believe that we should be able to be uniquely involved in that decision making.

We believe that we ought to view the entire system, and find a route, mode, method, inspection, safety issues, all these issues ought to be determined based on best practices. And I know you heard that term earlier. Best practices should be figured out and implemented. There shouldn't be any forced political, you know, over print on a best practices transportation plan, such that it results in bizarre or weird outcomes. Because we believe that bizarre and weird outcomes are going to lead to a less than optimal system, and a less than the very best system that it could be.

Above all, Nye County is interested in having a repository that is first class, that works, and works well, that is an example to the world of how this issue could be done, and that we can all be proud of. And that's the only way, having a repository under those conditions is the only way that the Nye County Board of Commissioners can assure its residents that DOE is operating this issue in a very safe manner. We don't think that we ought to have to bear any
1 additional burden because of DOE's, you know, because of this 2 operation.

Okay, if you could go to--yes, let's go to 19.  

Let's go to 20, the best practices. And I've kind of covered 5 that. This whole issue is about transferring risk from 131 6 sites out to one site. So, we believe that we are willing to 7 accept that risk if that's what the nation has decided, and 8 apparently it has. Congress has directed that this issue go 9 forward. But we believe that in accepting that risk and 10 being a team player and being part of this national solution 11 to a national problem, that Nye County ought to be able to be 12 at the table planning this myriad of issues that goes with 13 this transportation campaign.

We are not really interested in permits in Illinois 15 or, you know, but those are issues that a string of state 16 governors back up stream are going to have to deal with. But 17 we are interested in how the material arrives in Nye County, 18 how it's packaged, the order in which it comes. When it gets 19 out to Nye County, we want it to go to its final resting 20 place and not sit out in the sunshine there for the next two 21 or three lifetimes. We want the transportation, you know, 22 the actual rolling stock that's involved in transportation to 23 be safe, to be inspected.

You know, you've heard all the parameters and 25 conditions that most people--we want nothing less than what
1 you've heard certainly in the talks given by Mr. Loux and Mr. Reed. 
2 And let's go to the last one. We support--I mean, 
3 if someone asks us, well, should it go through Las Vegas 
4 Valley, we, like everyone else in Nevada, knows that the Las 
5 Vegas economy drives the wellbeing of the state as a whole. 
6 So, we're saying, you know, don't mess around with the Las 
7 Vegas Valley. The perception of risk sometimes can get out 
8 of hand. So, we're willing to go along with the, you know, 
9 with some alternate routing system that avoids the Las Vegas 
10 Valley if that's what, you know, the state and the Las Vegas 
11 Valley governments themselves and the other governors that 
12 are going to have to deal with this, if that's what's 
13 decided, we think that, you know, we are--the Pahrump Valley 
14 and Nye County, we're a little side bubble on this huge 
15 bubble that is the Las Vegas Valley gaming economy and the 
16 tourist based economy. We don't want that bubble to burst. 
17 We don't want it to even go down just a little bit. We don't 
18 want even another little blip like what happened on 9/11, 
19 because that had an adverse impact. So, we agree with that. 
20 We also are suggesting to the nation at this time 
21 that the people that are planning all this consider, you 
22 know, all the corridors, and perhaps the notion of a single 
23 point of ingress and egress, or that deadends at Yucca 
24 Mountain, is not the best idea. It seems to us that multiple
1 ingress and egress, multiple choices, if there's going to be
2 trucks and rail, or a mixture of that going on for the next
3 at least 40 years, that DOE and the people that are
4 implementing this transportation program ought to have the
5 widest range of choices that they can have for getting to the
6 site and out of the site.

And, so, the notion of having a single corridor
8 that comes down to Yucca Mountain and deadends just doesn't
9 strike us as a good idea for a number of reasons, and not the
10 least of which is that we're hopeful that a billion dollar
11 rail construction project might actually be through-going and
12 go from Point A to Point B, and go through Nye County, and
13 maybe do us some good besides--now, I'm not saying
14 transporting waste won't be helpful to us, but maybe we could
15 develop other commercial projects along that rail.

And my last point--well, I said my last point. So,
17 we think that this issue seems to be early on. There's lots
18 of chances for relevant entities to be at the table. We hope
19 to be at the table. My colleagues from the other
20 jurisdictions that are going to talk today will give you some
21 detail about specific routings and how they might impact on
22 their communities, and so on. And bear in mind, we could
23 have spent an hour here telling you all in excruciating
24 detail the impacts on the environment, water, wildlife, the
25 range cattle business, the fencing, you know, the bisected
and segmented grazing allotments. I mean, there's a myriad of issues here that transportation will impact on, and I think you're aware of most of those and we have most of the same issues and problems that have been brought forward over the last hour.

And, so, with that, I will conclude my remarks, and Englebrecht von Tiesenhausen from Clark County will take up the baton at this point.

VON TIESENHAUSEN: Thank you, Les. I'm going to stay right here.

In deference to Dan Bullen, I decided not to have a hand-out and not to have any slides, so he can ask fewer questions.

BULLEN: Don't bet on it, Englebrecht.

VON TIESENHAUSEN: I'd also like to limit my comments to basically DOE controlled issues, because that was the instructions we got from our Chairman.

A few general comments, talk a little bit about rail shipments, a little bit about truck, some of the impacts to Clark County that we're concerned about, also mention some QA issues and a couple of things about WIPP, and a few comments about the Baltimore Tunnel fire.

As far as truck transportation goes, I will consider not only issues affecting Clark County, but look at a couple of selections we did that cover the nation as a
whole. Jeff Williams indicated that DOE considers at least rail to be the preferred option, even though no formal decision has been made of that. We feel that it is more difficult and more expensive to construct a rail to Yucca Mountain than DOE is believing at this point.

As early as 1986 in an EA for the repository candidate sites, DOE states that Yucca Mountain exhibited three potentially adverse conditions, high construction costs, difficult terrain and local conditions that could cause the transportation-related costs, environmental impacts or risks to public health and safety from waste transportation operations to be significantly greater than those projected for other candidate sites.

The EIS basically considers, and Jeff Williams discussed those five options for rail, and I just want to reiterate I guess some of the points he made, is Caliente, Chalk Mountain, Jean and Valley.

Since the EIS, and continuing today, as far as the Valley siting, Valley option is concerned, recent land use changes in Clark County have made it very difficult, if not impossible, to construct this line. The Jean and Sloan corridor have the same conflicts as the Valley.

This discussion of the Valley Airport Public Land Transfer Act, which would impact the Jean and the Sloan Corridors, and the Caliente Chalk Mountain route is not
preferred by DOE because of national security issues with the Air Force, and that basically leaves Caliente and Carlin, which are the most expensive and while DOE gives construction costs in the EIS that are less than $1 billion, I think the general feeling is that they will exceed $1 billion.

In addition, some of the routes selected would pass through the Las Vegas Valley and affect the downtown area. The Jean rail spur or the Sloan Jean Intermodal Transfer Station would have the largest effects on the downtown Las Vegas area. This is a major concern to Clark County, and I will get to some of the impacts that we're worried about later.

Because of the difficulties that we see in constructing a railroad access, and I'm not mentioning any of the ones that Les looked at, because we didn't look at those, we feel the default option is probably going to be truck. And truck shipments can vary anywhere from 50,000 to I guess 100,000, depending on who you believe.

We've looked at some national truck shipment options, and just to give you some idea of the magnitude of the issues that are involved, we took the county population from the year 2000 census, and then we looked at number of people living within one mile on either side of those truck routes, and the total number of miles travelled.

If you look at the shortest possible routes, you're
1 looking at going through counties with a total population in
2 excess of 125 million, and going through 706 counties, and
3 the number of people living within one mile on either side of
4 the centerline would be around 15 million, and the total
5 shipment miles is roughly 88 million.
6 Another thing we looked at was consolidate southern
7 shipping routes which would minimize impacts from weather.
8 And, again, the population would be 124 million, number of
9 counties 687, population within the centerline distance, 13
10 million, and the shipping miles 92 million.
11 If you look at national transportation routes that
12 would avoid Clark County, you're still looking at a
13 population of 128 million, 129 almost, 707 counties, 12
14 million within a mile of the centerline, and total shipment
15 miles of 97, almost 98 million. These numbers are basically
16 not that far apart. So there would seem to be no reason from
17 our perspective not to avoid Clark County.
18 What are the impacts that we're concerned about?
19 We're concerned about economic impacts, impacts to species,
20 and air quality impacts. Clark County has issued, and I have
21 a copy of it, and it's on our website, it's basically an
22 impact report of what we see happening if truck
23 transportation became the selected mode.
24 And by asking real estate people, bankers, et
25 cetera, our consultants have come up with a transportation
1 dependent property value decreases from 2 to 30 per cent, with losses of up to $8.7 billion. Accident costs estimated, and this is without necessarily having radiological releases, $70 to $100 million.

Impacts to species, Clark County has achieved and maintains a federal permit under the Federal Endangered Species Act, and major construction in the Clark County area could damage or could impact this permit, and it could impact other counties as well.

Air quality. We have recently come, or have submitted a plan to be in compliance with EPA's air quality standards, and the modeling indicates that our compliances, while there, it's tenuous to say the least. So, we're certainly concerned about anything that would impact that.

I would also like to mention a couple of things about WIPP which has come up several times. As you know, there have been two accidents, or you may not know, there have been two accidents during the WIPP transportation effort. Total miles travelled so far are about 1.5 million. The accidents are not notable by what happened, but rather by how they happened, in my mind.

In one case, the driver lost consciousness and the truck just travelled off into a field. Nothing happened. If this had been in the mountains, or anywhere near some kind of other critical infrastructure, the results could have been
In the other case, a happy cowboy came in his pickup truck and hit the rear of the WIPP truck. When they checked the load, they actually found some contamination on one of the drums that should not have been there. The truck was sent back to its destination, I believe, and upon investigation, they found out that the locking ring on top of the drum had not been torqued down to specifications. So, this is Murphy at work as a scientist, I guess.

But this indicates that this wasn't really--the accident was negligible, but there was a failure to follow QA procedures, and this I think is the important issue. DOE has--Yucca Mountain Program, I should say, at least has a history of having quality assurance problems, and while this is outside of the purview of this meeting, it certainly does affect the way we feel and we think about transportation related issues.

A short comment on the Baltimore Tunnel fire. NRC did I think a fairly thorough analysis on reconstructing temperatures and the effects that a fire would have had on a nuclear waste transportation cask. They picked the High Star 100 to analyze the effects. Their conclusion was there would have been no releases if this cask had been in the fire. And I have no problems with that conclusion. I would just like to point out that the High Star 100, as far as I am aware of,
uses a welded can, and if there had been a torqued lid with less seals, the results might have been slightly different. Another issue with the Baltimore Tunnel fire, I guess it's the Nuclear Waste News, the January 23rd edition, they had a little article called The Fear Factor, in talking about this fire, and they said the most deadly risk from a spent fuel transportation accident may not be from radiation releases, but from fear itself.

That's the end of my discussion. Thank you.

BRADSHAW: Thank's Englebrecht. Paul Seidler for Lincoln County?

SEIDLER: Thanks, Les.

I'm here again representing Mayor Phillips. He's sorry he couldn't be here today. Two of his daughters are in the State Basketball Championship up north, and so he has a good excuse for not being able to make it. I'm here as a consultant for Lincoln County. The Lincoln County program, very briefly, is really driven by what's called the Joint City/County Impact Alleviation Committee, a citizens committee that advises the program. It's been in place since 1984. Lincoln County is one of the three original affected units of government, along with Nye, Clark and itself.

The Lincoln County program has produced approximately 70 technical documents over the years, backing
1 up the findings and the various conclusions of the program, 
2 and that culminated recently in the production of an impact 
3 report which we'll get to the Board, which defines Lincoln 
4 County's views and perceptions with regard to impacts from 
5 primarily the transportation of spent nuclear fuel to the 
6 Nevada Test Site, to Yucca Mountain. 
7    The position of the County since the beginning, 
8 actually the mission statement of the JCCIAC is to minimize 
9 risk associated with the transportation of spent nuclear fuel 
10 to the repository, to minimize potential impacts, and to 
11 maximize any potential benefits associated with the 
12 repository program. Those essentially have been the guiding 
13 principles of the program since the beginning. 
14    In the EIS, there are five railroad routes, and I'm 
15 not going to go into a great deal of detail since this has 
16 already been discussed earlier, five railroad routes to Yucca 
17 Mountain. Two of those are in Las Vegas, and has already 
18 been mentioned, we just don't think those are options. That 
19 leaves two Caliente options, and one option from the north, 
20 and we think that the institutional and the land use 
21 obstacles associated with the northern route will be very 
22 challenging to the Department. 
23    So, we sort of have come to the conclusion that 
24 it's quite likely if a railroad route is constructed, that it 
25 will be a route originating in Caliente, although we're
1 doubtful that the route going across the range complex will 2 be one of those options. In fact, that's a non-preferred 3 option among the five options that are identified in the EIS. 4 It's a non-preferred option because of concerns from the Air 5 Force.

Also, there are five intermodal options in the EIS, 7 and of those five options, three of those originate in 8 Caliente and two of those originate in Las Vegas. And for 9 the same reasons expressed earlier, we think the Las Vegas 10 options are not very likely.

Frankly, we think that at least initially, the 12 likely scenario is intermodal transfer as the way that waste 13 is going to get to the repository. The reason for that is 14 that the Department's stated goal, as well as I think a lot 15 of national interest in maximizing use of the existing rail 16 infrastructure in the country for transporting waste, it's 17 safer, it's more popular, we think it's less costly. So, we 18 think that rail transport to the maximum extent possible will 19 be the preferred option throughout the country.

We don't think a railroad is going to get built by 21 2010, and I'm not going to go into great detail as to why we 22 don't think that will happen. But we've analyzed that rather 23 closely, and given the current DOE schedule, we're pretty 24 skeptical about that.

So, that really, frankly, leaves the intermodal
options in Caliente. And for the audience, when we say intermodal, we just mean simply taking the waste containers off of railroad cars and placing them on truck cars, whether they be heavy haul truck or legal weight truck, and transporting the waste to Yucca Mountain. And we think the likely route for that will be around the northern side of the range complex through Lincoln County, Esmeralda County and Nye County into the Test Site.

The goal of our program has always been to be prepared and to be very much involved in the decision making process. We think that this is dangerous stuff, but we also are very aware of what the safety record is. We are aware of what the regulations are. We're aware of the safeguards as far as the casks and other aspects of waste transportation. And we think it can be done safely if it's done right.

The key thing to us is really the decision making process, and getting some decisions made, good decisions made, and good decisions made in a timely fashion. And after listening to the discussion this morning, and some of the discussions laid out today, I started to think, you know what we need is some really good high tech decision aids. I was at home and I was going through my kids' stuff, and this is the one I came up with (holds up a magic 8-ball). I'm just joking.

But, the bottom line is we need to start making
some decisions. They're relatively easy policy decisions. They're not politically easy decisions. They're decisions that, you know, there's a real tendency, desire to put off because of political considerations. And the position of Lincoln County is we just want to know where things are headed, because we want to know where we stand in this program, because there has been probably the biggest impact to date had to do with political cohesion within the community.

There are people who are reading the tea leaves, maybe using their magic 8-ball, and they've decided that they think there's a high probability that the stuff is going to go through the community, and they've, I don't want to use the word accepted that, but they've decided, well, if that's going to happen, we're a small community, this is a national problem, it's a national environmental problem that we're trying to solve here, let's be reasonable players in this process and let's, in the meantime, try to do things to maximize the benefits and the opportunity for the community.

Well, that, needless to say, taking that sort of approach when you're dealing with nuclear waste is challenging. It's stressful, and causes a considerable amount of tension in communities. Lincoln County has been going through that tension and that stress for over a decade, and they're hopeful that we've reached the point where some
decisions are going to be made one way or another so they can get on with life, whether it's as a transportation corridor to Yucca Mountain or whether it's not.

You know, I'm going to use this thing. Okay? Because there are some things I think the magic 8-ball could answer, and in my experience, the magic 8-ball is accurate 100 per cent of the time. I'll start with a really easy one, and that's one that I've already discussed. Can spent nuclear fuel and high-level waste be transported safely? Let's see what the 8-ball says. You can't look because I might have to change it. Are there models for state and local programs? Are there models that we could follow that we could learn from? Yes, definitely. It actually said the outlook is bright. There are some great models out there. I worked for the Illinois Department of Nuclear Safety. I was personally involved in shipments of waste, escorting waste shipments. We had, when I was there, a great deal of shipments to the G.E. Morris facility. We know it can be done right and we know it can be done safely. Again, it's a matter of getting down, making the decisions with regard to inspection programs and escort programs, all of the decisions that need to be made that really need to involve local governments, particularly in Nevada, because we're at the end of the transportation funnel.

The other examples, the Department of Nuclear
Safety has extremely progressive programs in Illinois, and it's one that I encourage people to investigate. It's one of two cabinet level Departments of Nuclear Safety in the country. They don't say that they like nuclear waste. They just recognize the reality that they're at the crossroads of the country, so they have a lot of this stuff going through. Half of the electricity in Illinois is generated by nuclear power. So, the state has taken a very progressive approach of protecting public health and safety.

Those are the sort of programs that we envision in Nevada to protect public health and safety in recognition of the realities that we think we're going to face in the future. WIPP is another good model for transportation. There's a great deal to learn from the WIPP model.

Will the waste go through the Las Vegas Valley? Okay, my sources say no. Frankly, we don't think it's going to happen. We've witnessed what's happened with the low-level waste shipments to the Nevada Test site, for example, and the political leaders in the State of Nevada have exerted themselves with the Department of Energy, and the low-level waste shipments generated, with a few exceptions, just don't go through the Las Vegas Valley anymore. They go through rural Nevada. We envision the same thing happening with the high-level waste shipments.

As Les has indicated earlier, the gaming community,
for perception reasons alone, will exert a lot of influence
to prevent waste shipments from going through the Las Vegas
Valley, and those are the main reason why we've concluded
that the waste will go through rural Nevada.

Will rail be the primary transportation system
outside of Nevada? And the magic 8-ball says, "As I see it,
yes." We think it will be for the reasons I indicated
earlier. Rail infrastructure exists. It doesn't go to all
of the utilities in the country, but it's an existing
infrastructure. It's a safe infrastructure, and from
everything I could gather, the public, to the extent that
it's voiced its position, and certainly the leadership around
the country, has indicated that it would like to maximize the
use of rail transport.

I'm not going to even bother using this for the
next question, and that's will the railroad be built in
Nevada by 2010, and we just have come to the conclusion that
we just don't think that will happen. That's seven years
away from now. When you think about the--while the DOE says
that there won't be, and we agree, a need to do anymore EIS
work in terms of identifying a corridor, there will be
additional need for work, there will be additional work
related to public lands that needs to be done. There's a
whole host of issues and a very challenging political
environment.
The country hasn't built a railroad of this scale for a long time, and certainly not in this type of political environment. The environmental issues that you face today in trying to accomplish this are much more challenging than in the past. We're not saying that it won't be built, that it shouldn't be built. In fact, we prefer rail transport. We just don't think it's going to be built in time to begin accepting waste at a repository, and that's why we've come to the conclusion again that intermodal transportation in Caliente will end up being the likely least fallback initial option.

I guess our message to the TRB is to have the resources focus on the realities of the program, the things that we think are really going to happen with this program based upon whether it be the political realities, the policy realities, the financial realities. We'd like to see decisions made, and if Jeff was still here, I would have given him my magic 8-ball, but we would really like to see some decisions made on mode and route as soon as possible, because that will allow the counties to get on with their programs, get on with decision making, and move forward in protecting the public health and safety.

We've all done a lot of research. We've all formed a lot of opinions on the details of that, and I'm not going to go and burden you with the details of that today. But,
really, the sooner that these decisions are made, the better off we'll all be here in Nevada.

That's all I have to say. Thank you.

BRADSHAW: Thanks, Paul. You're going to put some of those guys on the late night infomercials out of business with that new gadget there.

Abby Johnson representing a suite of counties along the I-80 corridor, and combining her comments with her specific county with some of the other in that suite.

Thank you.

JOHNSON: Thank you, Les. I am Abby Johnson. I'm the Nuclear Waste Advisor for Eureka County. But my presentation is coordinated on behalf of Eureka, Lander, Mineral and White Pine Counties. If I say anything that sounds too opinionated or outrageous, that would be speaking on behalf of Eureka or myself.

What I'd like to do is to talk about what it looks like from the draining end of the transportation funnel in northern Nevada. And you saw earlier what those maps look like.

We're looking at the possibility of commercial spent fuel, defense spent fuel, defense high-level waste, the Goshute PFS commercial waste, low-level and mixed waste bound for Nevada Test Site, all coming through our area.

You know, to us, jurisdictionally, we have a hard
time sorting out what's DOE's responsibility, what's the
Department of Transportation's responsibility, what's the
courtyard of the NRC, what's somebody else's job. It's
all coming down to us, and we're looking at our
responsibilities of public health and safety.

We have volunteer emergency medical and fire
departments. We have extremely long distances, long response
times, distant medical facilities for emergency care. When
White Pine County responds to an emergency call, by the time
they get there, get to the hospital, and get home, it can be
four and a half hours.

DOE still can't tell us, as you well know by now, rail or truck, dedicated trains or general freight, or
routes. These are things our people asked in the Draft
Environmental Impact Statement hearings.

And public confidence has been touched on today.
Well, it doesn't do anything for public confidence when the
people of Crescent Valley, Eureka County, Nevada hear year
after year, gee, we still can't answer that. We still don't
know. We'll have to get back to you on that.

I'm going to skip a lot of my presentation because
it's been covered by other people. For the Carlin Rail spur
concerns, DOE says it can decide on a corridor based on the
information in the FEIS, that they don't need any more
information. They can make that decision today. We don't
1 think there's enough information to make that decision, or at
2 least an informed decision. And even DOE in their budget
3 language for the FY '04 budget had a description of
4 activities for '03 that said they were going to spend money
5 to design culvert sidings and spur facilities for all five
6 corridors so they could get some cost estimates to help them
7 make a determination of which corridor they should pick.
8 They have, at the same time, not verified any of
9 the conceptual work they've done. They have not put on their
10 hiking boots, as far as we know, and checked out any of the
11 five corridors, except they did work on the Caliente corridor
12 a long time ago.
13 County concerns, this is primarily Lander and
14 Eureka Counties, actually very similar to what Les said,
15 flooding, grazing, mining, stigma, land use, impacts on and
16 takings of private land, a huge issue, taking of private
17 land.
18 Cumulative impacts. To date, DOE has failed to
19 acknowledge of address the cumulative impacts due to the
20 transportation of low-level waste and high-level waste spent
21 nuclear fuel through rural communities.
22 The FY '04 Presidential budget alludes to an
23 integrated plan for the two national shipping campaigns to
24 Yucca Mountain, and low-level waste to the Nevada Test Site.
25 That was a surprise to me that there was someone thinking in
that sort of big picture kind of way. Of course, it was just a sentence.

We also have rural legal weight truck concerns. White Pine County is the county that Paul was referring to that is receiving most of those low-level waste shipments coming from Wendover through Ely to the Nevada Test Site, and White Pine County especially is concerned that that sets a precedent for high-level waste shipments.

We've talked a lot today about emergency response needs and the dependence on 180(c). 180(c) funding is supposed to provide planning funds to tribes and states to train local governments in emergency response. Our opinion is that at the draining end of the funnel, 180(c) is not going to be adequate. It might be adequate for corridor states. Of course, the program hasn't been set up, designed, there hasn't been stakeholder input. So, it's kind of not comforting to say, oh, 180(c) will take care of that, without knowing the specifics of how it would take care of counties at our end of the funnel.

In Eureka County's Impact Assessment Report, we recommended as an impact issue, we are studying a regional emergency response and training center in central Nevada in the vicinity of the rail spur and truck routes, we think that's essential, staffed with professionals, not volunteers. It's not clear that local responders, based on
1 180(c), will be ready, based on DOE's lack of attention to
2 transportation planning for years, and it's unclear about the
3 funding adequacy of 180(c).
4 We believe that national transportation planning is
5 the first step. In order to make a defensible decision on
6 Nevada rail, DOE should begin national transportation
7 planning first, and Nevada routing decisions must be made in
8 that national context. And I can't emphasize this enough.
9 This includes the potential for 40,000 metric tons of
10 commercial spent fuel in western Utah at Nevada's border at
11 the Goshute--potential for the Goshute PFS facility. For
12 DOE, national planning must include that. It can't be, well,
13 it's an NRC facility, it's NRC's responsibility. No, that's
14 the same waste.
15 DOE must also overcome enormous institutional
16 barriers as it attempts to work out national transportation
17 plans, as we heard today, such as consulting stakeholders,
18 and working with federal agencies and industry groups,
19 something that we haven't seen a lot of so far.
20 We find that the system's approach is missing.
21 There is yet to be a solid integrated transportation
22 proposal. This transportation, movement of waste, is not a
23 linear process. Instead, it is a confluence of shipments as
24 they move to Nevada. And DOE needs to look at worst case
25 scenarios, including logistical complications.
For example, in the Draft EIS, they said if the Carlin route flooded in Crescent Valley, they would just stop shipments until the flooding went away. Now, I consider that to be a logistical complication that kind of backs things up, plus you're not necessarily going to know in advance when it's going to flood.

Other people have touched on WIPP, so I won't. I find that whenever I do a presentation, I always have a "Questions Remain" section, because these questions keep remaining. Mostly truck or mostly rail? What does DOE need before making this decision? What else do they need to know? Dedicated train or general freight? I was surprised at how little that was discussed today. Who makes this decision? When? On what basis? Cost, safety convenience, security, expediency? Do the railroads, states, local governments, industry, the public have a voice in the decision?

Route designation by states is likely to redirect shipments away from urban areas and towards rural areas. Yet this, in turn, will affect national transportation planning and emergency response capabilities.

I'm glad Jim used the word paradox, because that's what we have here, a variation of his paradox. The FEIS asserts that the risks from accident are infinitesimal, that 99.999 thing. Rural communities reason that if that's really
true, why avoid urban areas where emergency response capability is more advanced and roads are better.

On the other hand, if the risks are greater than portrayed by DOE and NRC, then why are rural people being put at greater risk by their government and being more expendable because of where they live, something that we've gone through already with above and underground nuclear weapons testing.

Regarding safety and security, DOE and it's federal partners must look at safety and security vulnerabilities throughout the system, including terrorism and sabotage.

Here's an example. NRC requires armed guards in urban areas, and does not require armed guards in rural areas. They've told me they will not drop their weapons. They will still hold onto them.

Now, the things that I think the TRB could help with. To advocate for a national transportation planning that uses a systems approach. To encourage DOE to engage affected states and local governments now, and to maintain an ongoing dialogue, transportation being part of oversight.

I know the Chairman wants to have a narrow scope for the charge of this panel, but I think that the TRB providing oversight on the technical validity of the package performance stuff that NRC is embarking on, not so much that, but integration of that information into the DOE planning process. I can see a situation where these things are going
on in parallel universes, and the NRC information never connects to the DOE path forward to 2010. You guys could be instrumental in making sure that those two groups are talking to each other.

It's also important to encourage DOE to study and be aware of the cumulative effects of transportation of high-level waste, spent nuclear fuel, low-level waste on local infrastructure and emergency preparedness, not just in the event of accident, but just the day in and day out kind of thing.

And, finally, rural routing should not be the result of political convenience.

Thank you.

BRADSHAW: Thanks, Abby.

George McCorkell for Esmeralda County.

MC CORKELL: Thanks.

I just wanted to begin by saying that as you will see, Esmeralda County shares a lot of the sentiments that were addressed by my colleagues here, and I don't think that should be seen as repetition, but in fact should magnify the importance of these issues coming from separate jurisdictions.

This map I actually pulled out of the Final Environmental Impact Statement, and I've got it up here, this is my only slide. I just wanted to give you a visual for two
reasons. First of all, so you know where Esmeralda County, in particular, the county seat of Goldfield, are situated geographically, and also so you can see, as I'll get into in a minute here, Esmeralda County's vital role in the transportation system.

Esmeralda County has spent over a decade understanding and evaluating issues associated with the transportation of spent nuclear fuel and high-level waste to Yucca Mountain. Our approach has been to position the County so that it has a credible and meaningful role in the development of transportation public policy versus getting entangled in the hysteria and public posturing that is the trademark of this issue.

It is our responsibility to put nuclear waste politics aside and begin the development of the system and policies that protect public health, the environment, and economy of Esmeralda County.

Esmeralda County is certain that all shipments to Yucca Mountain will be transported through our county. The basis for this is really very simple. All routes go through Esmeralda County with the exception of route options that go through Las Vegas Valley. I doubt that there is a person in this room who honestly believes that waste will be transported through the Las Vegas Valley. And the only other option is the Caliente Chalk Mountain route, which is by far
the best option, but not among DOE's preferred alternatives, which was mentioned earlier. Englebrecht talked a few minutes ago about land use conflicts that of course would make it virtually impossible to construct routes in the Jean and Valley corridors. I just wanted to add that there are also political considerations which would eliminate route options through the Las Vegas Valley. This has already been demonstrated with the routing decisions for low-level waste shipments to the Nevada Test Site. Minor transportation incident a few years ago cause political fear in Nevada that resulted in DOE dictating to shippers to use transportation routes that avoid the Las Vegas area. Thus, all shipments to Yucca Mountain will go through Esmeralda and Nye Counties, and very likely Lincoln County.

Depending on routing decisions yet to be made, other rural Nevada counties might be impacted as well, but all shipments will go through Esmeralda County, perhaps the poorest and least prepared county in Nevada. Impacts are far greater in rural Nevada than they are in other communities due to our location at the end of the transportation funnel, where shipments are highly concentrated and resources for emergency management are limited.

DOE is far behind in beginning the process of developing transportation policy and coordination with key
1 stakeholders. Local governments in Nevada that are impacted
2 by transportation routes should be a focal point of the
3 decision making process. A record of decision on routing and
4 mode is needed to begin focused discussions on transportation
5 policies. Stakeholders must be involved on important
6 decisions concerning full-scale testing, dedicated rail,
7 emergency response planning and training, medical
8 preparedness, shared use of rail for commercial purposes,
9 tracking systems and operational issue recommendations such
10 as safe havens, inspections, advanced notifications, and
11 escorts, just to name a few.

12 This map, as I said earlier, illustrates our
13 County's vital role in the national waste transportation
14 effort. DOE produced it to depict the various options
15 analyzed in the Final EIS for shipping high-level waste by
16 rail to Yucca Mountain. As you can see, all rail corridors
17 to the repository will traverse the eastern portion of the
18 county near the town of Goldfield. Goldfield is our county
19 seat and one of our largest population centers.

20 One method for mitigating potential adverse impacts
21 of waste transportation would be to employ local residents in
22 the construction and operation of the railroad.

23 Furthermore, the railroad should be routed and/or
24 branch lines developed to increase money and tourism
25 opportunities. Given the existing political climate and the
many environmental and land use challenges DOE will face, we're not at all optimistic that the railroad will ever be developed. And I think Paul alluded to this earlier. Considering that DOE has not even scratched the surface in developing plans for railroad, it seems beyond the realm of possibility that this mode of transportation will be available to begin waste acceptance in 2010.

While rail is our preferred mode of transportation, we expect that waste will be transported at least initially by truck in Nevada. We also believe that DOE's objective will be to maximize the use of rail on a national basis. Therefore, it seems that an intermodal facility will be developed. There are three intermodal options considered in the EIS. Two are located in Clark County, and a third is located in Lincoln County near Caliente.

For reasons stated earlier, we have absolutely no expectation that waste will be transported through Clark County, and we expect that an intermodal facility will be developed in Caliente, which will result in the use of U.S. 95 as the highway corridor to the repository.

U.S. 95 is a major artery for highway traffic through Nevada, and traverses the entire length of Esmeralda County. And, no, I don't have it pictured on this map. Other maps show it. It very much parallels the proposed Caliente and Carlin rail corridors in Esmeralda County. So,
1 you can kind of get an idea, you know, it impacts, kind of
takes up the same terrain there.
An issue there is that, you know, U.S. 95 takes a
90 degree turn in Goldfield. This curve has been the scene
of numerous commercial truck accidents over the years. In
addition, there is a very steep grade just outside of
Goldfield that causes many vehicular breakdowns. These are
eight examples of the type of everyday impacts that must be
considered.
In conclusion, we, and I think everybody else
mentioned this, we strongly encourage the DOE to take the
steps necessary to immediately begin site specific
transportation planning.
Mr. Williams earlier today alluded to the WIPP
model, he talked about the WIPP model. And this model has
demonstrated that DOE can work closely and early with local
governments to achieve success, which should certainly be
followed.
The past avoidance of the transportation issue by
DOE has generated unnecessary distrust in rural Nevada. In
order to safely transport waste and to gain public
confidence, DOE must immediately engage rural Nevada in
transportation planning.
Thank you.
BRADSHAW: Thank you. I think you've heard just about
every conceivable safety and public confidence issue that there is out there, and I think that concludes our remarks.

ABKOWITZ:  Les and the rest of the panelists, thank you very much.

We have a little bit of a time management problem here, so I'm going to ask the Board members to restrict their questions to their most compelling ones. And I do want to also point out we have nine people registered to speak in the public comment period, and I recognize those individuals may have other commitments. I certainly don't want to detain them.

Dan, did you have--

BULLEN:  Just two quickies?

ABKOWITZ:  Yes, two quickies.

BULLEN:  Bullen, Board.  Just maybe a quick comment from each of the people besides Les, because Les proposed the idea of not a deadend rail spur. And, routinely, everybody said that rail transport, although it may not happen by 2010, is probably the preferred route. Would a rail spur that basically was a through line, with a spur off to go to Yucca Mountain, be advantageous or desirable, depending on the route chosen through the counties that have expressed a concern about the fact that it's going to be an intermodal transfer and truck? I mean, I'm trying to look at areas where economic development--I mean, Les obviously identified
1 that as a possible issue for his county. But, do the other
2 counties feel the same way? And you don't have to speak for
3 your county. You can give me your personal opinion. I don't
4 want to put you on the record, because I know I go on the
5 record, and people get mad at me.

6 JOHNSON: Abby Johnson, Eureka County. Yes, I think
7 that Eureka County, if the route were to be built, it would
8 be better to have a through route than a deadend.

9 SEIDLER: I would agree with that. There's not a lot of
10 that that it would stimulate economic development, and so I
11 think we need to see more evidence with regard to that.

12 The other concern is the politics associated with
13 that, because the implication then is, of course, that waste
14 would be shipped potentially through Clark County or Washoe
15 County. And, so, there are some political implications, even
16 if it's stated that the purpose for going through is for
17 economic stimulation, I think you open up potentially a can
18 of worms with regard to the politics of this issue.

19 VON TIESENHAUSEN: Englebrecht von Tiesenhausen, Clark
20 County. I don't think there would be much benefit to Clark
21 County in this issue, actually.

22 MC CORKELL: I think Esmeralda County has actually
23 looked at the minor route, which Les showed you earlier in a
24 figure as, you know, a possible, you know, as you said, as an
25 economic development base because it would open up a lot of
the mining in that area, and could, you know, and I think further investigation is certainly needed, but could stimulate some economics.

BULLEN: Bullen, Board. Just a last question for Mr.-- is it Seidler?

SEIDLER: Yes.

BULLEN: You mentioned a report that's being prepared. Is there an opportunity for us to receive that? And I assume it will come at some point in the near future?

SEIDLER: Yes, we'll make sure you get it right away.

And, also, I do have Mayor Phillips' official talking points for today's meeting. But, we will get you the impact mitigation report.

BULLEN: Great. Thank you.

ABKOWITZ: Dick?

PARIZEK: Parizek, Board.

I'm looking at Page 6, Item 4, Transportation Planning from Les' talk, and you have a bullet there that says take the time to do it right. And that has a lot of implications in terms of how you'd recommend this be done, what sort of time frame. Because taking time means you can't make a quick decision. On the other hand, all of these deadlines that are looming require action. We heard one let's get on with deciding so we can then deal with this at the local level. But, your bullet there is thought
provoking. Do you want to elaborate on that?

BRADSHAW: Just not too much, because I know there's lots to do. But the issue of taking the time to do it right I think has implications for a good, safe, well thought out, we don't want to be pushed up against a deadline, and this has been brought out by the various people here. We don't want to be pushed up against a deadline, and then have some rush decision that has a weird or bizarre outcome. So, just take the time to do it right.

DOE has been at this. We've been at this for 35 years, or so, and this is the key issue that's going to make this national program work. There has to be public acceptance. I mean, otherwise, if you have one line in to Yucca Mountain, and the mayor of Salt Lake City lays on that track, it's over, you know, it's over. So, I mean, we've got to think this out and make this transportation plan work so that the public has confidence in it and it's safe, and that nobody feels that they're being unduly imposed upon. I think that embodies what I was trying to say.

PARIZEK: And the last bullet, DOE is in a position to support best practice, but not to take point. Now, they really have the responsibility to create the transportation and carry out the transportation program, but how do they do that and not take point?

BRADSHAW: Well, they ought to let--by that, we mean
1 that DOE has a lot of, and I'm not saying this
disrespectfully, but DOE is carrying a lot of baggage on this
issue. They've got lawsuits. They've got court orders, and
so on. They've got, you know, they're predisposed, or
they're being pushed along in certain directions, and a best
practices national transportation plan may best be done and
thought out by people that are at the table with DOE. For
instance, I'm just extemporaneous here, but like the national
legislative group, Mr. Reed's group, I mean, they've thought
out many of the details here. So, DOE has to gather these
people in and spread the heat around on this decision.

This will never ever be a popular decision, and
whatever decision is made, there's going to be oxes gored all
the way from Las Vegas to the East Coast. So, share that
decision making.

PARIZEK: One other point. I want to compliment each of
the speakers on what I see to be a very mature analysis of
the problems as you see it at the local level. You're down
at the low end of the funnel, again, without the resources
and without maybe the emergency response capability, and all
of the other things that you've pointed out. It's an eye
opening presentation that each of you gave. It gives me a
lot of food for thought, and I would hope that this then can
go back in at the national level and be shared, because
you're all the point people from the point of view of where
it's coming to, or could be coming to. And, given that, your
mature outlooks are greatly appreciated.

BRADSHAW: Thank you.

ABKOWITZ: Thank you. I'd like to echo Dr. Parizek's
remarks in terms of the level of concern and time you've put
into contemplating your views on the subject. And I'm sure
we'll have an opportunity to visit with you again as time
goes on. Thank you.

We're moving into our public comment period at this
point, and I just wanted to point out that the Board has
always considered it to be very important that any individual
who has views to share on the subjects that we are assessing
have the opportunity to speak on their behalf. And, so, in
doing so, we're entering into that time allotment here for
our session today.

I have nine people registered on the program. I'm
going to read them out in the order that they have been asked
to speak. Because we have so many folks on the program, I'm
going to ask each speaker to try to focus their comments and
keep their comments to no more than a five minute period.

We will start with Dr. Sam, and again I'll
apologize ahead of time here for my pronunciation, it's
partly the way these names have been written on the paper and
partly my inability to know where to accentuate. But I'm
going to try my best. We're going to start with Dr. Sam
1 Armijo, and then he will be followed in the following order, 2 Dolores Honeycutt, Tom McGowan, Grant Hudlow, Sally Devlin, 3 Bill Vasconi, Jacob Paz, Judy Treichel and Kalynda Tilges.  
4 Okay, so, we'll start with--and if you would please 5 identify yourself for the transcription when you begin your 6 points.  
7 ARMIJO: Mr. Chairman, my handwriting isn't very good.  
8 It's Sam, last name is Armijo, A-r-m-i-j-o. I will be brief.  
9 I wanted to focus my remarks on the issues of public 10 confidence and communication. I will not repeat, because I 11 think an excellent job was done by the counties of Nevada.  
12 I would totally endorse their proposals. I think 13 DOE could do a lot better if they did a bottoms up approach 14 to communicating with the legal entities in the state. I 15 think top down, and strictly at the top at the state level is 16 probably not the most productive way to go, but certainly 17 these counties have put a lot of thought into their work, and 18 it shows.  
19 I personally have spent a lot of time in the 20 nuclear industry, 30-some years in the nuclear industry.  
21 I've been responsible for the design, the development, the 22 licensing, the production and the selling of fuel for G.E.'s 23 nuclear fuel business around the world. So, I'm familiar 24 with this technology. I've retired. I'm now an adjunct 25 professor at the University of Nevada at Reno. But I would
I like to emphasize that the remarks I make are my own, and don't necessarily represent the university nor my former employer.

I think the problem in Yucca Mountain, if you read the newspapers in Clark County and Washoe County, where we're from, may give the wrong impression of the views of Nevada citizens. Nevada citizens are very open, they're very smart, and they're very independent. I had the opportunity to be a delegate to the 2002 Republican Convention here in Las Vegas last year, and I was also a member of the Party Platform Committee, and clearly the issue of Yucca Mountain was very important to the state. And I was a little concerned in that committee that I might be the only person who was supportive of Yucca Mountain. We had 20 to 30 people from all the counties on the Platform Committee.

I walked into that meeting, and I found immediately there were three or four other people with position papers, ranchers, ex-military people, as well as myself, with well thought out, very well prepared presentations, material supporting Yucca Mountain. This was a grass roots initiative.

In the Platform Committee, because on the whole there was no support for an Anti-Yucca Mountain plank, and consequently our Platform Committee did not issue any plank on Yucca Mountain. And as we talked among the committee
members, I found that people were very open. They wanted to hear, they wanted to hear from people that knew what they were talking about. They were not interested in sound bites. They were not interested in propaganda documents. They really wanted to talk and understand what was going on.

We then went to the general floor of the convention. We also had a lot of conversations. Unfortunately, there was no opportunity to debate the issue of Yucca Mountain. But, again, we found that the delegates were very open and wanted to learn more about it.

So, I urge perhaps the Board and everybody here in this audience who has expertise, and I know there's tremendous expertise in this room, to get involved, to talk to people. Slick brochures from DOE are wonderful to a certain extent, but that won't convince people. You've got to have person to person contact, and I think again a lot should be done to emphasize bottoms up communication.

The net result of all of this work at our convention was one plank was proposed from the floor supporting the President's nuclear programs, nuclear energy and energy independence program, and that received the lowest votes from all of the delegates of all the platform planks. One platform proposal to state that the Republican delegated supporting Yucca Mountain failed by a slim margin, and the only one that passed on Yucca Mountain was something in
between that said, well, in the event that the Senate overrules the governor's veto, we urge the governor to please work with the federal government to make this thing safe, sound, and of maximum benefit to Nevada.

And I think the time for the politics and everything else should be over, but it isn't. And the only way it will be over is if more effort is placed by the people in the know to talk to the citizens, talk to the base level governing organizations, and you'll find that you make an awful lot of progress.

Again, I want to go back to that issue I mentioned yesterday, excessive conservatism in design does not put people's mind at ease. In fact, it alarms them. Because if non-mechanistic, unrealistic accident scenarios are proposed, engineered, and then said well, we can still handle that, people believe that those terrible things can happen, even though they can't.

So, again, I go back to that old point, the realistic engineering, good engineering is what's needed, and excellent communication, and to the extent that the Board can influence DOE and others to talk at the grass roots, we'll all be better off.

Thank you.

ABKOWITZ: Thank you. Our next speaker will be Dolores Honeycutt.
HONEYCUTT: I'm Dolores Honeycutt from Goldfield. I'm president of the Chamber of Commerce there, and on the Citizens Advisory Commission. I'm also very nervous. I guess you all can tell. I came from back east originally from around the power plants, and you'll find more fear there than you will here where it's going to be a reality. This was my first meeting. I was kind of overwhelmed yesterday by all the technical things, but gradually, I began to see the impact on me and Esmeralda County. I had hoped for more answers, but I guess I got more questions, like a lot of you did, because you didn't get your questions answered either.

In Goldfield, we are like an extended family. Everybody is very close. Asking for safety measures and protective equipment is only to protect theirselves and to help, because we feel like this is our friend or our family that's going to be reacting. We don't have a medical center close. If we have any kind of serious thing, they have to be air lifted to Las Vegas or Bishop or to Reno.

And in the presentation, you heard that just about any kind of way you take it, it's coming through Esmeralda County, and we don't have the facilities. So, we do need that addressed.

Thank you.
ABKOWITZ: Thank you. Our next speaker is Tom McGowan.

MC GOWAN: Tom McGowan, Las Vegas resident and candidate for election as mayor of the City of Las Vegas, Nevada.

I want to be the first to welcome you here to the world famous Tuscany Hotel. Thank you very much. It's very impressive. And as a matter of fact, when I found my way in here, I said how do I get to the catacombs, and he told me.

It was recently determined by a well settled astrophysicist that instead of a big bang followed by a gravity induced big crunch, all matter in the four-dimensional universal spacetime continuum is racing apart towards an ultimate end state of respectively insularized and intra-remotely distanced isolation, thereas and thereby marooned in an infinite void where relativity no longer exists, since there will be nothing within the range of scientific perception to obtain as deemed relative to. Does that make sense?

BULLEN: Pay attention.

MC GOWAN: You have no lines.

BULLEN: I'm sorry.

MC. GOWAN: Consistent therewith, it's abundantly evident that DOE, within a few decades of exhaustive self and mutual confoundment, has attained to the same state of advanced morbidity with regard to itself and the TRB, as well as to the rest of reasoning humanity, as to the rest of you.
The validity of that assertion is attested to by the fact that DOE's presentations, which ordinarily begin with the reassuring phrase, "Once upon a time," and end, "Happily ever after," have since become identifiable by the frank and forthright short title, "I don't know," and endless reiteration. And have further declined to the "CYA" expediency driven pleadings, "Safety is a function of funding," which leads unerringly to the reasonable assumption that both safety and funding are a function of smart, or the absence of it, which explains everything.

In the fictional world of DOE, the most egregiously impactive consequences of seismic activity occur only at a discontinuity definable as the ambient surface, and not at a, however, albeit internalized quasi surface discontinuity definable as an underground repository, whose cumulative sum of subsurface deployed discontinuity is quantifiable in several hundred cubic meters of virtually empty space, or if backfilled, of granular material in stark contract to the intrinsic rigidity of the encompassing host rock. Correct me if I'm mistaken anybody.

In similar mystical fantasm, DOE assures all and sundry blathering idiots who just fell off the turnip truck that in the instance of compelling need, it has the capability to retrieve the emplaced waste before, but not post, closure and to deploy it on the proximally adjacent
ambient surface, not as unlawful interim storage, but solely pending further instruction apparently deemed ensuing eventually, if ever, or at all, from some higher pay grade, somewhere, somehow, ad infinitum ad nauseam. You know the rest.

Thereas, and not surprisingly, it's obvious to all but the certifiably comatose that DOE's repository scheme in service to the "betterment of mankind" is more so akin to a fascinating, costly and protracted game designed by Parker Brothers to appeal to the eight year old market.

For its part, the eminent, prestigious almost the whole Board, shrunk to a quorum, you are still a quorum; is that correct? You have no minds, just nod approvingly.

BULLEN: You can't hear me nod.

MC GOWAN: Anyhow, the TRB interprets DOE's de rigueur recommendations to invite public communication, whatever that may be, which equates to interaction in the real world, to comprise a mandate to engage in public censorship. Don't take offense at that. You're new here.

Incidentally, what do you do here exactly? Never mind.

But, why quibble, since the activities of the DOE and all nuclear waste transfer and storage at Yucca Mountain and that of participants is now, has always been, and foreseeably will remain, a wholly transparent and indeed
omni-embarrassing exercise in futility, reinforcement of the undeniable fact that the world's leading scientific, technological and academic minds have failed themselves, each other and all posterity, inter-generationally, and for the rest of human time. It gets worse. And for no other reason than the fact that via NWPA, the Congress instructed the generic "you" not to think, and worse yet, it paid you to do it. Even worse than that, you agree.

It paid you also to ignore the probability that in the instance the repository is found to be unsuitable and beyond remediation, either before or post-closure, the retrieved waste eventually, or sooner, will be destined to be re-transported elsewhere, perhaps omni-directionally, and perhaps in perpetuity.

Clearly, the fundamental crux of the issue is not now and never was or will be nuclear waste, per se, but is causally rooted and embodied in the frailties of limited interested, expediency driven human nature.

But, human problems have a human solution, with the help of almighty God. We are each and all creator-endowed with intellect, freewill and conscience, and the greatest of those attributes, by far, is conscience. Not on your agenda. Don't even look it up. Conscience.

We can make this place a better world, and properly harnessed nuclear waste can provide an endless supply of
safe, clear, neo-energy conducive to world peace, progress
and productive co-existence. Don't tell that to George W.
and Sadam. They have their minds made up. In fact, don't
even tell each other, because some of you may have your minds
made up. Why you did not consider other alternatives yet, I
have no idea. Maybe some day you can explain it all to your
great-grandchildren.

But, first, we have to really want to make a better
world, and to do so, we must first want to become better
people. It's not quite that simple. It can be done, but it
isn't for the faint of heart, and won't be done by those who
sell their hearts, minds and souls for a price, however
lucrative.

So, coward, take my coward's hand, and together,
let's endeavor to take one, however timorous and faltering,
step down from the primordous tree, and strive confidently
across the non-returnable threshold that opens onto the
brilliant horizon of unprecedented challenges and
opportunities for extraordinary human achievement that awaits
and beckons throughout the third millennium, and beyond.

I've run out of jazz ideas, so that's about it.

ABKOWITZ: All right, thank you very much. Our next
speaker is Grant Hudlow.

HUDLOW: Hi. I'm Grant Hudlow, and I wanted to thank
you for getting some industry experience in here. That was
very refreshing. Steve brought some things up that scientists have a hard time figuring out how it works. But when it goes down the road and it works, well, then we accept it. We need to do the same thing with the metallurgy from the chemical industry. Any time I want to know anything about a hole in the ground, I go talk to a miner. He's the one that's going to have the rock land on his head, and so he knows what he's doing in there, and what the mine is, and so forth. I'd like to see some of that.

Steve mentioned the safety culture for nuclear transport, and they seem to be doing pretty well, either that or they're hiding it very well, I don't know which. And I think the public expects the DOE to hide things, and it doesn't expect them to do a good job. So, I think that needs to be emphasized, that the culture, we have a safety culture in the chemical industry in the Fifties was that it was an honor to die for the company.

We've slowly changed that. The DOE at the test site still has a safety culture problem. I talked to several people about how about the danger of radioactivity. Oh, well, radioactivity doesn't hurt you. Well, how about the people around you that are dead? Well, they were wimps. They're not a man like me. So, that's not a safety culture that I think should be spread out into the public.

And along those lines, we were talking about a
full-scale test. How about for a rocket launcher on one of these canisters. I talked to a young scientist in Los Alamos, I think, maybe Sandia, he mentioned it only punctures a quarter of an inch hole in the side of the canister, and a little bit of radioactivity comes out. Well, I guess he did that on the computer model. That little quarter of an inch hole takes out the inside of a tank. And if you happen to have several Hiroshima bomb fallout equivalents in there, I want to know where you're going to test that. Maybe on the other side of the sun would be a good place.

And I just want to add that into the safety consideration. I noticed in some of the paperwork, they said that we have a management plan for sabotage, and I'd like to ask you what that is, since when they've released several Hiroshima bombs fallout out across the country, is that FEMA is going to get the body bags out, pick up bodies for hundreds of miles. Is that the plan? Nobody has spelled that out, but that's the only one I can see.

ABKOWITZ: Thank you. Our next speaker is Sally Devlin.

DEVLIN: Thank you, Mr. Chairman. You're doing a beautiful job. We really appreciate it. And I think all of us old timers here want to say thank you to Tom. We have missed him. I thought he was dead. And you can't start my time yet. I thought he was in the obits in the paper here, and when he showed up, I was so thrilled, because us old
timers, or we have endured, remember the 30 minute speeches
with John Cantlon, or longer, do you remember that, Dan? It
was fun, and we're delighted that he's still with us. And
thank you.

So, now you can start me. Just a welcome. We're
all friends here. We've all been together for years. Right,

It was my pleasure today to meet Jim Reed. And the
reason I say this is I met him on the phone, and he sent me
the 2000 Governors' Conference Legislature stuff, and in
that, was a page where every state, and at that time there
were 22 states, and what they charged for transportation.
So, of course, I went to our Department of Transportation. I
got the forms. I read them, and so on and so forth. I
culled out inspections, and what have you.

And I hate to keep saying nasty things about Nye
County. I hope Les is still here. Good. And that is we
have mold in the schools and all kinds of things. The reason
is Nevada has no inspectors. And, so, no trucks carrying
anything are inspected. Now, that's rather important. The
27 that they have range from $5 in New Hampshire, to $1,200,
and maybe more now, in Nevada. So, I suggest you get that
report, because it was the last page of my transportation
report to you guys.

The second one I want to talk to is Steve Kraft.
Is he here? All right. You asked that people be assured of the safety of this project. And I'm going to tell you how people can be assured. You talked about the H-Star 100. I have all the information from NRC on that. I want to see these canisters filled with half a mega-ton of the high-level waste, and drop from 70 feet, and splintered with a spike. I want to see them burned up with the waste inside. I don't want any of the pantywaist stuff that you're doing. And then if any of this stuff endures, then and only then will I believe you. Does that tell you how you impressed the public?

What you're doing with empty canisters is unacceptable. Anybody can go into 1,400 degrees and burn for three days, like they did in Baltimore. What you're doing is fraud on the public, and I'm going to say it. Put the hot stuff in the canisters, and go for it. Then let's see. And let the public see. Let us find out the radiation potentials, and so on. And that is my opinion, because what you're doing is not impressive at all. You are not doing full-scale testing.

The other thing is, and of course I have to say it - how much longer do I have?

ABKOWITZ: You have about two minutes.

DEVLIN: Okay. The other thing that I have to say, and of course I have to bring in two things. The first is
political, since we had a Republican, and I'm his Democratic
counterpart, and we of course said we don't want Yucca
Mountain. You haven't tested anything. Everything is phony
baloney, and it's all money, and it's all politics. And I
concur. I've been in on this for ten years, and I say it
honestly to each and every one of you that I have not
received one single report with a period at the end of the
sentence. And I think after ten years, there should be some
periods.

And the reason I am so glad that I am against it is
for my conclusion, and that is when you are bringing this
high-level waste, or anything else, for that matter, into
Yucca Mountain, or any repository, or where the governor of
South Carolina laid in the road and the government road over
him, this is what goes on in the world. And as far as I am
concerned, and I told you about my 60 pages on my bugs by Dr.
Bond, which everyone should read, what about the bugs in all
of these sites, 70 something sites. Who has examined them
for bugs? Who knows what you are transporting, bringing in,
contaminating, and what have you? Who knows how long these
rods will last. We just have to look at Hanford and what
happened to the rods around the pellets. My bugs ate them.
Bechtel is getting $4 billion to clean up the mess there.
And why? Because my bugs ate the containers. So, may I say
to you this is very serious stuff.
The other thing I do want to say is it was very interesting hearing Lincoln County, and Abby, with Eureka, and Esmeralda County, and I have to leave you kind of laughing, and that is I was recently up in Esmeralda. 98 per cent of Esmeralda, and you may correct me if I'm wrong, is federal. They have maybe 600, 800 people living there, mostly in Goldfield, which is 26 miles from Tonopah, which is Nye County's county seat. And we are educating their children because they have no money.

Now, I want everybody to know here that every cubic foot of waste that's placed in the Test Site, we counties affected get 50 cents. They put in last year something over a million cubic feet. We got paid close to a million dollars. Actually, it was more than $2 million. So, we're going to get the rest of the money owed to us. This year, there will be 2,000,600 cubic feet put in the Test Site.

And last, but not least, I am extremely concerned with the AT18 that is going into Frenchman's Flat at the Test Site. And does everybody know what AT18 is? AT18 is 2 1/2 metric tons of plutonium grade stuff from Los Alamos, and 1 1/2 tons of uranium. This is weapons grade plutonium and uranium. And it's going into Frenchman's Flat. Now, you all are seismographers and you know that's the most earthquake prone area of the Test Site. It's on the north, coming from Pahrump, northeast corner.
So, there's an awful lot of stuff that we're well aware of in Pahrump, since we're 40,000, 50,000 people. And I get concerned with Lincoln County, because they are the greatest county in the world and they have really nothing, except 900 kids in the coop extension and 125 leaders, and I certainly salute them for that. Esmeralda has nothing. Eureka has very little. And that's not their fault.

Nye County is 18,300 square miles, and I was at a committee fortunately with Carver, who was our commissioner, and he told me the size. Our other commissioner there, who was assistant fire chief, I said how many firemen do we have trained. Maybe in the entire county, 21. How many EMTs do we have, because our gal that is now working for Les and used to work for the county, Susan Morris, said we have about 18, or so. Now, this is in a country 18,300 square miles, all of the population is in Pahrump, you might as well say. Tonopah loses every day, and that's our county seat, and we're trying to change that.

But, you're getting a picture of enormous distances, and I have to leave you laughing, or I wouldn't be me. And that is remember when you break a tire, or you blow out a tire, where do you go in Nye County? You go to the brothels or the casinos. And now we have Dillon's Dolls, and I hope everybody after the meeting asks me about Dillon's Dolls.
Thank you.

ABKOWITZ: Thank you. Our next speaker is Bill Vasconi. I hope I pronounced that correctly.

VASCONI: My name is Bill Vasconi. I'm a construction worker. But that doesn't mean I don't participate at your meetings. I'm involved with anything in the past years from employee transition committees, to historical foundations, to preserve the artifacts of the Test Site during 50 years of testing. I've also been involved with a community advisory boards, site specific advisory boards, and for those Nevadans that think nuclear safety and benefits is an item to talk about.

I worked at the Nevada Test Site some 17 years in association with such outfits as Sandia, Defense Nuclear Agency, Lawrence Livermore National Laboratories, Los Alamos Scientific Laboratories. I've enjoyed this afternoon's meeting. I've enjoyed the Nye County presentation. I like to hear people say that it's a national issue versus a state issue.

Many of us involved know that the national issue portion of it, we've got some 70 nuclear powered submarines, ten nuclear powered aircraft carriers, five areas in our country where we worked with atomic weaponry. Those items have been, particularly the Navy's, have been transported across the United States from such places as Birmingham,
Washington, Hitney, Maine, Newport News, et cetera, to Idaho. We've not had no problems.

I enjoyed the presentation by NEI, and believe me, if there was something wrong with the credibility, the safety of transportation of spent fuel rods, my State of Nevada would have told you time and time and time again. The safety record stands.

I also enjoyed the comments made by Bob Loux, a representative of the State. You know, I've attended a lot of meetings. I sit across in panel discussions from Bob Loux. I've never heard him talk this way. It gives me time to pause and think, because believe me, the State of Nevada's position that Yucca Mountain hasn't been responsible or realistic has been politically motivated and based.

You know what? That doesn't work well with a scientific project. And the way Bob talked today, maybe our state is reexamining their approach to Yucca Mountain. Maybe there's an opportunity for us Nevadans to seek benefits before that opportunity is history as well.

You know, I can give you the perception of looking out that window. You would think my, God, it rains a lot in southern Nevada. But if you join yourselves and go on down to the lake, you'll see a ring of white dirt around there about 60 foot high. If you go on out in the back part of Nevada, you'll see that we've been in a drought for some four
1 years. So, sometimes the perceptions you see made by a state
2 official aren't true.

3 Now, you may find that some feel that a railroad
4 system cost prohibitive. Bob did. But what Bob didn't tell
5 you was that's just about how much money our taxes are going
6 to be increased by our governor, equal to the amount of that
7 railroad system. They want about $800 million, the citizens
8 of Nevada have their taxes increased.

9 Bob might want to refrain from talking about the
10 casks, because I was in a meeting with Bob and I said, "Bob,
11 if the Nuclear Regulatory Commission does all the tests that
12 Nevada wants to prove its validity, will Nevada then accept
13 shipments of high-level waste to Yucca Mountain?" He said,
14 "Hell, no."

15 So, when I look at it, are we attacking the
16 substance or the procedures? Bob wants to talk about the
17 AEIS and what's wrong with it. Bob wants to talk about
18 litigation, which they've got some six or eight suits against
19 Yucca Mountain. What Bob ought to talk about is people like
20 me that's not involved with politics, that are not servitude
21 to an organization, that are Nevadans that believe this can
22 work.

23 And, believe me, beyond these walls, beyond the
24 folks that sit here in government, beyond the people that are
25 paid to speak and say what they do, there's a good many
1 Nevadans that look at you, the National Academy of Sciences, 2 to be our voice, to be the ones that question, to be the ones 3 that get it right. We, too, want to see something done on 4 transportation.

   A record of decision, is that what you want to call 5 it? You know, some two years ago, I attended a meeting with 6 the DOE, the DOT folks were there, lawyers were there, the 7 state was there, legislative individuals were there. Russ 8 Dyer said, "We want meaningful dialogue." Russ Dyer, DOE. 9 He said we want to talk about the fact that this state, the 10 mayor, does not want high-level nuclear waste going through 11 the greater Las Vegas area, metropolitan area. We want to 12 talk about the state giving us alternative routes. We ant to 13 talk to the state about trucks. We want to talk to the state 14 about railroad, not that the state will pay one dime, not 15 that the state will be involved in any of the financials. 16 They turned a deaf ear to that request. Why? Implied 17 consent.

   So, sometimes what you hear on the mike is not all 19 true. But, again, I want to thank you for coming to Nevada, 20 and believe me, as one who spends a good bit of time out of 21 doors, if every time you come here it rains, damn it, come 22 more often.

   Thank you.

ABKOWITZ: Thank you very much. Our next speaker is
1 Jacob Paz.
2 PAZ: My name is Jacob Paz. I hope you remember me.
3 I'm making five comments. First of all, on the
4 transportation issue, we have to look at the East. We have a
5 problem in the East of the--the bridge is corroded. In 1974,
6 you have an accident at the Connecticut Turnpike, which part
7 of the Turnpike fell with the heavy load that you have to
8 carry from the East. It's a very serious issue.
9 Second, the Environmental--I'd like the gentleman
10 who spoke before me if he would stay, I would like to rebutt
11 him a little bit. Second, we have an issue in the
12 Environmental Impact Statement, upon closure is there is a
13 resumption of the Nevada Test Site, what impact it has on
14 Yucca Mountain has not been addressed at all.
15 Third, very recently, yesterday was published and I
16 got, and I hear several people here talk about, by Ewing in
17 Scientific American about uncertainty at Yucca Mountain. I
18 have approached several times the DOE to do some studies,
19 recommended, there are uncertainties that cannot predict at
20 this point in time the rate of migration of radionuclides,
21 the effects of radionuclides, and heavy metals. I made a
22 recommendation to the Board to get an advice from the
23 National Academy of Sciences, because this is a group which
24 in 1980 or 1983, first approached it.
25 Second, I'd like to know how Murphy Lowe, with all
the uncertainty and the scientific input, in my opinion, should go into the modeling. I think there is a very serious issue. We cannot predict. In my opinion, we don't have sufficient study to approve at this point Yucca Mountain. You have spent $7 billion, and very big conservatism, as a scientist, I don't accept it. As a scientist, you need to have more data.

That's all. Thank you.

ABKOWITZ: Thank you. Our next speaker is Judy Treichel.

TREICHEL: Judy Treichel, Nevada Nuclear Waste Task Force. This isn't a presentation. It's a laundry list. So it's difficult, but if you sit here for two days and you just sort of take notes and then get up to put something on the record that you think needs to be there, this is how it winds up.

When Abby Johnson was talking, she talked about the fact that at the end, there's always a second called remaining questions. And I think you have a lot of those after these two days of presentations, because I don't think a lot of questions were answered adequately. And one of the reasons that that always happens is because there is never a clear understanding, or a clear agreement on what the definitions are.

When Priscilla Nelson was asking about safety, I
think it probably meant something different to the person she
was asking who was up here, it meant something different to
her, and it meant something different to the people in the
audience.

The simple answer, and the one that we know is
ture, because I've been discussing this for almost 20 years
with the Department of Energy is safety equals legal. If it
complies with the regulation, it is then safe. And it is
someone else's decision. The thing can be passed off, but if
it wasn't in compliance with the regulation, NRC wouldn't
have let it happen, EPA wouldn't have let it happen,
therefore, that's what safe means. So, that's one of the
things to keep in mind as far as a definition. That's one of
the more important ones because it's come up all these years.

In addition to that, things get clouded because
words like suitability and the suitability determination has
already been made, which I think is a sin, because you've
heard how much of the work is in its infancy. A lot of the
talk yesterday was about how they are just beginning to scope
various work that they plan to do. And yet it's kind of
water that's over the dam. But the definitions get messed
up.

When this thing was recommended, it was recommended
by the President and the Secretary in many ways because it
was their determination that it was national security.
People across the nation see that as a threat to national security to have nuclear waste coming as close as it will that you heard from Englebrecht's talk.
The other thing that I wanted to make sure and put on this record was it's very disconcerting to people who have come to have a special feeling and a special respect for Technical Review Board meetings, because it's the one place that things get hashed out, and to have heard the phrase used, "Let's talk about that off line, let's talk about that later," this is the venue where things get talked about.
If there is a disagreement between a Board member, between a consultant, between a speaker and whoever they're interacting with, this is the place where we want to hear it. We don't want it to happen somewhere else. We've fought with DOE and NRC for years over that, and the sorts of things that perhaps go on on the phone, and it's not an open program when that happens. And this is the one place where you cannot do that.
I also think in light of this idea about fostering and building public confidence, which is almost a joke at this point, the Department of Energy, Margaret Chu very recently said that they were about to embark on a public participation program. Well, it just couldn't be a moment too soon, could it.
But, I think that the idea of fostering public
confidence is something that's never going to happen when
you're talking about accident scenarios or possibility for
risk being unrealistically high or something that can't
happen. You're putting this program into effect, into place,
it's going on in a country that has seen two years worth of
things that could never have happened.

If you ask anybody if NRC's geniuses took their
time to run the risk assessments on planes hitting buildings
and anthrax in letters and D.C. snipers knocking people off,
and, I mean, Columbia is falling out of the sky, the list is
endless, and things do happen and they can happen. And when
I see a number like that 99.99, the first thing I think is
probability, somebody is going to use that to weight
something.

When you ask what a dose is going to be, make them
tell you what the dose will be. It's not that hard. And
it's not that they are required not to say, that NRC has made
them use probability assessment, or risk informed,
performance based, or whatever it is. Ask for the dose. And
if you want to do the math with it later, that's fine. If
you would have used those sorts of calculations on the recent
disaster that happened in Rhode Island, you may have had
three minor injuries to the people that were there, not 95
stone cold dead people.

So, just finishing up here, I think your job is
just as important as it was the day you got started. There's
a whole lot of stuff that's just starting out. You saw
designs today that none of us had seen. You saw designs that
we were still asking questions about, well, where does that
fit, how does that work, do you have a track or are you on
wheels. And you were getting different answers. And the
next time, you're going to see something entirely different.
So, it's just starting out, and your job is altogether as
important as it was.

And when you've got DOE out there supposedly
inspiring confidence, but yet the utility is going to be in
the driver's seat, that's a tremendous disconnect. It's not
going to work quite that way, and there are a lot of
questions. There are a lot of remaining questions, and they
still need to be asked.

And I thank you for having the counties on. It was
great that you did that. And I would like to have you also
be able to talk to some public interest groups that are kind
of the other big segment that hasn't been talked to.

So, thank you.

ABKOWITZ: Thank you. Before I introduce the last
speaker, I did want to respond to a couple of things that Ms.
Treichel made reference to. One is we do plan to hear from
more groups, as you know, and it's just a matter of
allocating the time with future sessions to make sure that we
have an opportunity to get all those parties in front of us. I also wanted to comment that with regard to the Board and the off line issue, the person who said that yesterday immediately acknowledged a poor choice of words, and did not imply in any way, shape or form that the way that the Board has conducted itself in the past will change. We will continue to be a very, very, very open process. I just wanted to state that.

TREICHEL: Okay. But just don't start to act better. We've heard that from other places.

Thanks.

ABKOWITZ: Thank you. Our last speaker is Kalynda Tilges.

TILGES: Kalynda Tilges, Shundahai Network.

That was a good choice of words that Judy used, laundry list. I tried to put this together in a form of comments, but all I really have is a list of questions. I do have one small statement at the end. And I do have to say, with all due respect to the Board, that as I mentioned the last time you were here, I have a problem with the public not being able to make comments until the very end, because I have a list of questions here. I have comments. But NEI and Clark County are the only ones here. It's like to me, it's living proof that the DOE really doesn't care what we have to say, and I do see two members of the Technical Review Board
1 missing as well. And, to me, that's very disturbing, not
2 only from DOE, from the Technical Review Board.
3 If the public is going to be invited and given
4 space to make comments and ask questions, I think it would be
5 a matter of respect for people to actually be here who made
6 the presentations, or give the public some small time, or
7 figure it out so the public can also ask questions of the
8 presenters. I'm still going to ask my questions to put them
9 on the record, but obviously I'm not going to expect an
10 answer.
11 So, with that said, my questions, most of my
12 questions were for Jeff Williams' presentation. I think this
13 Slide Number 3, I brought my own, you don't have to put them
14 up, is very, not only missing safety information, it's very
15 appropriate for DOE and how they seem to work everything
16 around and around in circles.
17 Also, many places, I stopped at Page 38 and 39
18 about communication, fostering public confidence, build
19 working relationships, make informed decisions. I was
20 wondering actually if the DOE had a timeline on this when
21 they were actually planning on starting. Because they
22 haven't done so. This is the same lip service they've been
23 doing for years now, and to me, this means absolutely
24 nothing. In fact, it means less than something, less than
25 nothing. It's a slap in the face, because there really isn't
a plan to do that. I mean, when? They're not here to do it now.

Secondly, another question I had, and like I said, these are just for the record, I don't understand how the Department of Energy can say the impacts of the transportation are all in the Final Environmental Impact Statement, when from today and every other presentation I've seen, they don't really have a clue how they're going to accomplish this shipping scheme.

Also, Slide 41 talking about 180(c), about funding for the tribes, and all of that, well, as we all know, Congress can pass all the laws they want, but then they have to appropriate the funds. So, what's the Department of Energy going to do, or Office of Repository Design, or whatever you want to call it, what are they going to do if the funds aren't enough, or if the funding is cut? Are you going to cut something else in your program to make sure that most important of things is done? Or will you just change the rules like you've done with everything else that was inconvenient to you?

Secondly, I'm curious to know how the Department of Energy--these are all comments on Jeff Williams' presentation, by the way, just for your information--I was curious as to how the Department of Energy planned on working cooperatively with the State of Nevada when the State of
1 Nevada doesn't even want them here.
2 Also, I was curious as to whether or not the
3 Department of Energy, Jeff Williams brought up the--or maybe
4 it wasn't Jeff Williams, I don't really remember at this
5 point--brought up the people tying themselves to railroad
6 tracks in Germany to stop shipments, and I was curious if
7 they were expecting any of that if they started to ship here
8 in the United States, and how they planned on dealing with
9 that as pertaining to safety and public confidence in the
10 program.
11 Another question that I had, and I'm sorry, I
12 really don't mean to be snide and cynical--well, cynical I
13 can't help. On Kirk Lachman's Slide Number 8, the waste
14 emplacement gantry, I couldn't help but thinking back on a
15 Technical Review Board meeting we had in Pahrump a couple of
16 years ago, when reference was made, and possibly I believe it
17 was by Mark Peters, or, no, he actually commented on it,
18 about the mechanism to remove damaged or compromised casks,
19 he quoted it as being the world's largest whisk broom. So,
20 I'm curious, is this the design of the world's largest whisk
21 broom, or is this something completely new? Has this been
22 developed yet? Is this just another, you know, little
23 fabrication in the mind to make it look good on the
24 presentations?
25 And the last thing that I have is actually a
1 comment, and it talks about aging facility functions.
2 Section 141 of the Nuclear Waste Policy Act basically states
3 that monitored retrievable storage, interim storage, shall
4 not be located in the same state as a repository. It has
5 nothing to do with licensing. And the only difference that I
6 can see between interim storage and an aging facility is in
7 the spelling of the word. A rose is a rose by any name.
8
9     Thank you.
10
11    ABKOWITZ: Thank you. That concludes our program for
12 today. I just wanted to take a moment to thank the
13 participants, both the planned presentations, as well as the
14 comments from the public. I want to thank the Board and
15 Board Staff and others that were involved in this. And I
16 feel that we've learned a lot today.
17
18    We're going to convene, and I'd like to ask that
19 the Board Staff and consultants and members meet in ten
20 minutes in the Forenza Room, which is next door, and we'll
21 start discussing what we've learned and where we're going to
22 go with that.
23
24    But, again, thank you very much all of you, and
25 enjoy your evening.
26
27    (Whereupon, the meeting was concluded.)