UNITED STATES

NUCLEAR WASTE TECHNICAL REVIEW BOARD

TRANSPORTATION PLANNING PANEL MEETING

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Dr. B. John Garrick, Chair, NWTRB
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I N D E X

P R O C E E D I N G S

(8:05 a.m.)

ABKOWITZ: Good morning. I'd like to welcome everyone back to Day 2 of the Nuclear Waste Technical Review Board's Transportation Planning Panel Meeting. I thought we had a very productive day yesterday. We learned quite a bit of information that I think was useful in terms of enhancing the Board's understanding of the Department of Energy's Transportation Planning activities. I hope those of you that had an opportunity to participate either as a speaker or as part of the audience also came away with, you know, a better understanding of what's happening and ability to focus more directly on those issues of concern to you.

Today, we're going to conclude the session and we're shifting gears a little bit and looking at some of the activities that are going on right now outside of the Yucca Mountain program that we think may have some lessons that are transferrable to it. Most specifically, looking at the private fuel storage situation here in the State of Utah, and then we'll also have a presentation that looks at the issue of transportation risk perception, how much perception drives that way in which people think and react to transportation safety and security, and some of the ways in which communication can be a very important mechanism for

addressing those types of issues.

But, before we get started in the technical presentation, I'm absolutely delighted to introduce the Governor of Utah, Olene Walker. We're particularly privileged to have her at our meeting today. As many of you know, her service to Utah has been quite extensive including a period as the leader in the Utah House of Representatives where she served as Majority Whip. I know what that terms means in terms of position in the House. I hope that that doesn't also imply how you ruled it, but that's for another time. She has chaired the National Conference of Lieutenant Governors and is past President of the National Association of Secretaries of State. Governor Walker was also the first Lieutenant Governor ever to serve as the President of that organization. She is a native of Ogden, Utah, and received her bachelors, masters, and doctorate's degrees from Brigham Young University, Stanford University, the University of Utah, respectively. So, started here, went away, and came back.

As you know, a consortium of utilities known as the Private Fuel Storage LLC has proposed to construct a temporary spent fuel storage facility here in Utah. Planning for this facility has led to much discussion and analyses of the potential impacts of the transportation of spent fuel through Utah. Governor Walker will summarize Utah's views on

spent fuel transportation including lessons learned that may be relevant to the Yucca Mountain transportation planning effort.

Please, welcome Governor Walker.

WALKER: Thank you. I'm especially pleased to be here and I certainly want to welcome all of you to our great state of Utah. I am going to read my testimony. I don't often do that in speaking, but I think this is so critical, I feel that I will read it and I know that you have been given copies. And, if you will indulge me, I will just read it from the text.

Mr. Chairman and members of the U.S. Nuclear Waste Technical Review Board, thank you for scheduling this transportation planning meeting in Salt Lake City, Utah. I appreciate the opportunity to provide comments on the transportation of spent nuclear fuel. I understand that the mission of the Board is to evaluate the U.S. Department of Energy technical and scientific activities related to the proposed repository of Yucca Mountain. As such, I appreciate that your focus during these two days in Utah is on transporting the nation's commercial spent nuclear fuel. That is what I would like to discuss.

Utah has a significant stake in this work. As you know, under the proposed plan for Yucca Mountain, spent nuclear fuel will travel through Utah. If the proposed

Private Fuel Storage Facility in Utah is licensed by the U.S. Nuclear Regulatory Commission, that spent fuel will likely remain in Utah either because a permanent repository is not opened or because the capacity of Yucca Mountain, if licensed and then opened, is insufficient to accept the additional 40,000 metric tons of nuclear waste. Even if this permanent repository is opened, the spent nuclear fuel stored in Utah will be transported at greater risk through Utah a second time, after 40 to 50 years of the cask storage, to a permanent repository. We can neither afford nor tolerate short-term technical thinking or expedient fixes to this long-term problem.

We have worked in connection with other western states through Western Governors Association and the Western Interstate Energy Board to coordinate with DOE on the transportation of radioactive waste to the Waste Isolation Pilot Plan in New Mexico. This included coordination on designation of routes and notification of shipping, funding for emergency response training for local responders, and ongoing evaluation of transportation. This coordination and planning is an essential part of WIPP transportation.

Utah will continue to work with western states through WGA and WIEB to establish a similar plan and coordination with DOE for transportation of spent nuclear fuel. From Utah's perspective, I hope that a transportation

plan will include early and ongoing coordination and planning between federal agencies and states along the transportation corridors. Thorough technical and regulatory evaluation of the rail transportation option since this is the mode over which the states have the least direct involvement in terms of standards, repair and maintenance, inspections, and ongoing monitoring. Full-scale transportation cask testing including, first, rigorous testing protocol which includes testing to failure, not just to standard; two, testing of casks during the period that they are in use; and, three, an ongoing monitoring and evaluation program which includes state and independent evaluators, and emergency response training equipment and financing and technical support prior to and throughout the period of transportation.

The fact that this panel is considering transportation issues now gives me some hope that these concerns will consider the evaluation and oversight that they deserve.

Yet, despite these considerations, there is a critical, critical flaw in the schedule. The NRC has committed to full-scale testing of the casks to be used to transport spent nuclear fuel to a permanent repository. Transportation of spent nuclear fuel to a permanent DOE repository will not occur before 2010. However, if the proposed PFS facility in Utah is licensed by the NRC,

transportation of the same spent nuclear fuel could begin as early as 2006.

At the same time DOE, NRC, and your Board are evaluating the safety of transportation tasks and proposed routes through corridor states across the U.S., PFS will be moving their nuclear waste across the U.S. without the benefit of any testing, technical evaluation, planning, or emergency response preparedness. As a result, one, there will be no full scale testing of the transportation casks prior to the initiation of the shipping campaign. There will be no opportunity for the Board to evaluate or oversight full-scale transportation cask testing prior to the initiation of shipments. There will be no NEPA review and no final EIS because the NRC has not required it for the PFS shipments. There will be no federal-state emergency response training or support because none is required of the PFS. And, once again, the citizens in Utah and states along the transportation corridors will be asked to trust the Federal Government at the same time the government is testing the reliability of that commitment.

Therefore, I urge you in your role as the independent Nuclear Waste Technical Review Board to get involved. Support and participate in one comprehensive transportation evaluation. Again, I stress the one comprehensive transportation evaluation. One schedule, one

rigorous full-scale cask testing protocol, one comprehensive emergency response plan including participation and evaluation by states and an independent agency or a board prior to any, any transportation of spent nuclear fuel across the country to a storage facility. This is critical to the citizens of the State of Utah.

And, thank you for your consideration of this issue. And, again, I thank you for being here in our state to hear this important testimony. As you can tell, we are extremely concerned about this issue. We are extremely concerned about the lack of the same evaluation that you are looking at for Yucca Mountain. That same evaluation will not or it currently is not being required of the PSF facility that is proposed for the State of Utah. Thank you for your involvement. Thank you for being here in this state.

Are there any questions?

ABKOWITZ: Thank you, Governor Walker. Does anyone from the Board wish to ask a particular question?

GARRICK: One question.

ABKOWITZ: Dr. Garrick?

GARRICK: Garrick, TRB. I just wanted to ask you, as you know, even though we're not directly involved in this project and that a lot of the activities having to do with Yucca Mountain are spinoffs of Yucca Mountain, you correctly state will not be a part of your process. But, one thing

that is part of your process is public participation in the nuclear regulatory process and I just was curious if you had a well-organized, well-defined effort to participate in the public participation process that the Nuclear Regulatory Commission makes available through the licensing process.

WALKER: Certainly, we've been involved in it for years. We've participated. There's been public hearings. Certainly, the polls would indicate that, by far, I think it's somewhere in the 80 percent of the people oppose--high 80s--oppose the nuclear rods being stored either as a temporary facility or a permanent facility. I think Dianne Nielson who spoke to you yesterday can give you all the exact hearings that we've been involved in. But, I think every time we have the opportunity, we are there discussing the issues. We hope that we have been very rational about our discussion providing facts and information rather than just total opposition. But, we have some serious concerns and I hope that you will consider, as you discuss the transportation issue, the fact that the schedules for the temporary facility is far ahead, it looks like, than what you're discussing, whether the permanent casks are sufficient for transportation, that we would be in the process of shipping them years before your decision would be made or the decision by DOE. So, we've tried to participate in every avenue we can to let our serious, serious concerns be known.

Dianne, do you wish to add anything to that because she has been head of our department of environmental quality for all--it will soon be 12 years and certainly I look to her for expertise and probably the schedule of all of our input on hearings.

NIELSON: Dianne Nielson, Utah. Governor, you covered the issue well. The State of Utah intervened when the license was first filed with the NRC and we have been active in that licensing process over the last seven years. But, as you're all aware, that's a fairly prescriptive process and there isn't an awful lot of opportunity for public comment. There was in the EIS for the site itself just for the location of the storage facility, but that is--and for some public comment at a couple of licensing board meetings. But, the NRC process is one that's really very prescriptive and the only way that you can be involved is to intervene in a very formal legal sense with legal representation be able to present those arguments. But, Utah has been there and we have worked very hard to provide every opportunity possible for the citizens of the state to also come.

GARRICK: Yeah, the other point I was going to make is that you don't have to participate just in the context of the prescriptive process. You can take the initiative and go to the Commission directly and express your views and take your case in as a direct a fashion as you like and the Commission

certain accommodates that as an extra effort rather than just the activities associated with the normal hearing process.

NIELSON: I assure you that we have taken advantage of absolutely every opportunity and if there are other recommendations that the Board have, we'd really appreciate that also. Thank you.

GARRICK: Thank you.

WALKER: I will assure you even as late as last week we met with the delegation and primarily to analyze is there anything we've overlooked that we can do to get our message out and the concerns of the citizens and the State of Utah on this issue. So, we have tried to take every avenue possible to let our position be known.

GARRICK: Thank you.

ABKOWITZ: Thank you, John.

Abkowitz, Board. Governor Walker, I noticed in your statement that the State of Utah is working or has and continues to work collaboratively with the Western Governors Association and with WIEB.

WALKER: Yes.

ABKOWITZ: Yesterday, we recognized the value of these state-regional groups in communicating and coming forward with some collaborative ideas, but I also sense that there are some underlying disagreements at times. What has the experience been for the State of Utah in working with an

organization like that and do you find that because Utah is forecast is to be a heavily used corridor state to Yucca Mountain and also as the actual destination for PFS shipments, have you found that the issues and the way you look at them differ from perhaps some of the other states and how do you reconcile those things?

WALKER: Utah has been a very active participant with the Western Governors. The former governor, Governor Mike Leavitt, who was in office prior to my administration for 10-1/2 years was chair of the Western Governors, as well as the National Governors Association. I think it's obvious that within the Western Governors there's some differing opinions on certain issues that relates probably to the state's best interest on certain cases. If you're referring to the fact that Nevada would prefer not to have Yucca Mountain open, our position of having temporary storage above ground may conflict with their desire to not have it, at all, and we would be in a similar position if that--so we may differ on certain policies. I think in talking to the other governors, all the governors would prefer it not to go through their state. And, if it does go through their state, they want it to be in the areas that are the least populated. So, I think in that sense we share the same opinions. I think we stand with Nevada, and if we had a choice, would say we do not want it in our state. So, in that sense, we share the same

statement.

ABKOWITZ: Okay, thank you.

WALKER: Is there something specific that you were referring to?

ABKOWITZ: No, that was fine. I was just trying to get a better understanding of--

WALKER: I think the basic philosophy that we have is similar. The western states are the states that are probably growing the most rapidly with the exception of Georgia. Georgia is growing rapidly, but if you look at our states, Nevada, Arizona, Utah, Colorado, New Mexico, we're all growing in population at quite a rapid rate. And so, many feel that we have a lot of wide open spaces and we do, but we're all states that are growing very rapidly and certainly those are the states that have been looked to for possibility of permanent storage. I think we're all united that we would prefer not to be here. We don't have any nuclear power plants in the State of Utah nor does Nevada or other states and certainly we would be united in preferring that maybe those that use it, keep it. But, that's another topic. I know that's beyond your review. But, I think, overall, we're all united in wanting it, if that does go through our state, to go on corridors with the least population, but with the greatest safety through the population. The fact that often those corridors go through the most populated parts of the

state is a great concern not only for natural accidents, we are living in a new era of terrorism. It would seem that in some cases that it could become a target. And, certainly, we're concerned about that.

ABKOWITZ: Thank you. Dr. Kadak?

KADAK: Yes, Andrew Kadak, Board. Yesterday, we heard some--I would say somewhat conflicting testimony about route selection. Let's assume for the moment that Yucca Mountain is the designated site for repository. Some of the states felt that--or some of the regional groups felt that it would be best for the DOE to pick a site with consultation of the states. Others felt that perhaps the states should collaboratively work to pick the best site on their own and then present that as a recommendation to the Department of Energy. What would be your view?

WALKER: I'm going to think of the best solution. I think it's a very difficult position to pick a site and I think that it's very difficult to pick a site by how many votes a particular state can get.

KADAK: I'm sorry, can I clarify? I was looking at the routing, the routings for--

WALKER: On the routes?

KADAK: Routing, I'm sorry. I think you could get agreement among the states to figure out where the least number of populous areas were involved. I think that there

would be total agreement on that because it is far superior in, I think, every governor's point of view to have it go through the areas where there are the least possibilities of an accident affecting population. So, I think you would have agreement. Again, as I state that, it's hard to pick a route from every site, nuclear power site, that would go through areas of the least population without a great deal of expense, some building new--if it's rail, new rail lines. And so, I think, though, if the choice were given to the governors, we're pretty--we have a pretty reasonable bunch and I think we probably could do a fairly good job of selecting the best route. I know that there would be a lot of personal protective attitudes by the governors because we care a great deal about the states we represent. But, on the other hand, I think that we're fairly reasonable in our overall objective and that's what is best for the citizens of our state and ultimately what is best for our country.

KADAK: Thank you.

WALKER: Thank you.

ABKOWITZ: Thank you. Governor Walker, on behalf of the Board, I'd like to thank you for spending the morning with us. It's always important to hear from our senior government leaders on issues of this kind and I know you are a very busy person and we certainly appreciate that you've done this. I also wanted to thank you and your office for helping

coordinate the hosting of this meeting here in Salt Lake City. We've found it to be a welcoming site and it's been a good experience for the Board. Appreciate it.

WALKER: Well, we hopefully have provided good weather for you while you're here and I hope that's an enticement that you will return on vacations and even if it were to discuss this particular issue. I know there are very few issues that rise to the priority level of this issue in the State of Utah, but because of the significant ramifications to our state both in terms of the transportation corridors and the fact that a totally different set of standards have been placed on the supposedly temporary above-ground site that has been suggested for the temporary storage of the nuclear waste, we are very, very concerned and feel that it's a critical issue for our state and our citizens.

And, thank you for allowing me to be here.

ABKOWITZ: Governor Walker in her comments made reference to the Private Fuel Storage Facility that's under consideration here in the State of Utah. And, our next speaker will be giving us a lot more information on that planned facility and will be talking a considerable amount about the transportation planning aspects about that, as well.

Our speaker representing LLC is the top dog himself, John Parkyn. He's the chairman and CEO for Private

Fuel Storage LLC and I'd like to welcome him to speak at this time.

PARKYN: I'd like to thank you very much for the opportunity to speak to you. I'm going to try my best to answer your questions.

Certainly, a lot of us who have been involved in Utah have a great admiration for the incumbent governor, her support of education. Not many of us have shared a common interest in our own states. So, certainly, our involvement here is not something that's in any way anti to Utah. We recognize it's not a welcome activity anywhere, but part of our job is to solve a national problem as a nation.

I think you're all aware, certainly, that we currently ship spent fuel. That there are certified canisters and obviously as a condition of its license, PFS is certainly committed to using them. A little background before I start. I'll give you a brief history of myself, the PFS effort, and then try to concentrate mainly on transportation which I know is your special interest today.

Background-wise, I am a nuclear engineer. I have been licensed on four American reactors to operate them. I have directly shipped fuel individually as a shipping supervisor. I have loaded those casks and unloaded them. I've served as the chief nuclear officer for utility. So, I've pretty well seen the spectrum. Outside of that, I have

served 33 years in local elected public office. So, I, too, am sensitive to what people think and I am a County Commissioner at this time. So, I understand the concerns, the politics of doing things like this in your area, what the reactions of people are, whatever the national issue is that has to be solved. So, hopefully, nothing I say is in any way insensitive to the concerns that people who live here or along any of the transportation routes have.

Moving on, basically, Private Fuel Storage is a company that was formed by utilities that actually own and operate nuclear power plants. So, it's not a separate entity from them in the sense that it's a company that's been in involved in generating the material that we're talking about, that has available to it the staff or the people who handle this material every day.

It started in 1995 with eight utility members that actually with some changes are still there. We applied for a license from the Nuclear Regulatory Commission in 1997. Again, as a reminder, the license format for storing spent fuel is, as was pointed out by one of the state staff, prescriptive. We're not here to put this form on energy on trial or review or those standards. Our elected public officials at a national level set them. It's our obligation to comply with them. The NRC is very rigorous in its process. As you can see, it's 2004, we don't have a license

decision yet. The Boards try to be vigorous, as does the staff, and at this point we haven't satisfied their concerns and we have to do that to get a license.

We had safety hearings here in Utah. And, to partially answer a question given to the governor, there were hundreds of Utah people present. I think there were a total of four hearings and the board chairs made sure that times were extended so everyone had an opportunity to speak. There were also written-in comments in the hundreds on the environmental impact process statement which the Commission responds to each one. So, there's an extensive public involvement with the stakeholders of any process like this, as there should be. This was prescribed in our law. It doesn't necessarily mean that each person will be satisfied with the outcome. I actually won't be satisfied. Perhaps, Utah or some of the persons that spoke won't, but there's a divergency of views. You have to try to embrace, consider all of them, but still come to a conclusion that moves forward to solve national issues.

We had the environmental and final safety hearings in 2002. Those were also held here in Salt Lake City. The Final Environmental Impact Statement and the final safety evaluation report did recommend a license in December of 2001. Now, the EIS did include not just the site, but also the proposed routing of the rail line into the site. So,

it's both site and rail line inclusive.

Going on, some of the major benefits that got us started at this are, obviously, we have 72 locations generating energy from nuclear power. The question becomes how do we deal with the spent fuel in this era of post-reprocessing. Many of us started when there was a prescriptive closed in process, some of us actually worked at plants that were shipping for the process of reprocessing. But, suddenly, that was gone and the fuel began to build up at different sites. Power plants have a specific life span. They're located in areas that, of course, are often quite populous, virtually always on waterways. So, the issue is where is the best place to store spent fuel? Should it be stored at 72 locations or at one? Our nation made that decision in 1982 when it passed the High-Level Waste Act and the decision was it certainly should be stored in one. So, our involvement is just an interim part of it. Part of it, of course, is a concern as to what it will cost. Remember, this cost isn't to absent stockholders, this is to rate payers, regular people who are buying electricity and paying so much a kilowatt hour. Also, there's a concern that, as alluded to by the governor, we're living in a somewhat different era and we have to be concerned about safeguards and security and having spent fuel in one location rather than 72 enhances that. It doesn't degrade it in any way.

So, we're certainly committed to a central storage site. Many of us have been very active in what you now call Yucca Mountain, but was known in a sense before site designation as a national repository. We continue to be involved in that. I don't own part of Private Fuel Storage and I have no specific personal gain in seeing anything like this become permanent or extended. This is a cost to the rate payers. I work for an electrical coop, by the way. So, the rate payers are the owners. This is a cost that they weren't supposed to have to bear, in addition to paying the mil a kilowatt hour for a permanent site. So, our total hope is to get this issue resolved, staying out of the politics of where the permanent site is, get a permanent underground repository as prescribed in that Act, and put the fuel in it. We're simply a temporary or an interim storage site to remove it from all these power plant sites where it's scattered around now and understand it must be shipped. And, of course, we've routinely shipped fuel in this country for many years. While we're certainly, as I'll point out, trying to enhance the safety in that shipment, it's not an activity that America is not actively engaged in even at this time.

Also, I've spoken to three of the four and will speak to the fourth of the regional organizations over the last five years quite often. We have assured them that we will provide training for local responders and that they will

be involved in route selection. I certainly remake that commitment here. I think they're all quite aware of it. They've interacted with us in a lot of detail for a lot of years and they're very aware of what we're proposing to do.

Next view. This is a picture of the site. As was pointed out by Governor Walker, it's in Utah. It's actually on the Goshute Indian Reservation in Skull Valley, Utah, about 10 miles north of Dugway Proving Ground, a Federal installation that has done a lot with chemical and biological weapons and their testing over the years.

This is from the Environmental Impact Statement. I think you're probably all aware that you have to do visual impacts as part of your impact on the environment. This was an artist rendition of a completely filled site sitting on an actual picture of the environment around it showing an access road coming in, the rail line coming down from the north where it ties in with the Union Pacific's mainline. 4,000 casks, each with their canister inside, could hold 40,000 metric tons of spent fuel. As an interim site, our hope is simply to have much less than that. As I said, we're actively working to see the repository finished, but we understand that when it opens, wherever it is, to diffuse the political issues currently before us, that it will take a lot of years to get it up and running, that it will initially have a very slow intake rate, and that we're in a position to

store stuff in an interim time period, and then to feed it into that national repository in the formats they want. This site will not handle fuel. It will not allow any radioactive contamination as is present at operating power plants.

Going on to the next one, the other part of the story is, of course, transportation. We were urged by a lot of local government in the area, including the County Board and the surrounding county, to have a rail line into the site rather than transloading onto trucks. We were also urged by the then chairman of the Nuclear Regulatory Commission to approach it in that manner so that there wasn't an extra handling of the canisters. So, from the beginning, while the project has always had the other option in its license, the process has been to try to have an all rail transportation into the site. So, in the Environmental Impact Statement, the other portion of it, is transportation. That shows the tie-in itself of Interstate 80 about 50 to 55 miles west of here basically into the mainline of the Union Pacific where a railroad that has been through the Surface Transportation Board would be built called the Great Salt Lake & Southern and would operate south from the Union Pacific mainline into the site. And, that, as I said, basically shows the impact visually of putting a rail line in. Some might call it a short line or a spur. It's 32 miles long.

Next one. There's some strategic concepts. We

started actually in 1984 with many of the utilities and spoke with their technical people as the best way to ship fuel. We've shipped a lot of fuel in the United States. You know, I've heard numbers as high as 3,000 shipments and I'm not necessarily here to endorse the number or question it either way. But, the idea was that we should try to do this in the best manner that it's ever been done in the most prescriptive manner.

So, we used technical review committees from a lot of utilities to review canister vendors. We invited all vendors to bid. We specified as a technical decision that we only wanted what we call Multiple Purpose Canisters. Many of you may be familiar with the Department of Energy program many years ago to go strictly with MPCs. They funded, I believe, it was Westinghouse to develop the concept. We took the idea over through this project. We don't want to handle fuel here in Utah or anywhere else. The idea is that the fuel would be put permanently in canisters at the plant site by operators who know best what they're doing because they've handled it in their careers and it would remain in those canisters.

Many of us have been active with the Department of Energy in encouraging them to bury those canisters unopened at Yucca Mountain, but that's their decision. In the interim, they would be sealed at leaving the plant site. We

would not handle fuel. Canisters would be moved out of their transportation casks into a storage cask for the site. The canisters would not be opened in any way.

So, a lot of effort was put into a technical review by a good staff of engineers as to the viability of these different canister proposals. They then advanced. I believe, the first application was 1994 to the Nuclear Regulatory Commission who grants actual certification of these. So, we're not involved in determining which canisters comply with the standards. We're committed under our license to legally using those that have a license and certification from the Commission and only those.

We did a lot of review of handling requirements both at source and destination because, obviously, it's the handling that gives you the highest possibility of having a problem and many of us who have actually handled bare and active fuel are well-aware of what's involved in doing that. So, we got to a series of procedures and processes long before we began even looking for a site or putting together a license application.

The next slide talks about transportation. This was probably the area that we focused on more than a storage site or handling fuel because there's been a lot done with that. We had a lot of discussion on truck versus rail. One of our members--well, actually several of them have, of

course, shipped by rail including past the plant that I work at. I've personally shipped by truck from three sites or three reactors, I should say. And, we came to a decision that while it's certainly perfectly legal and safe to ship by truck or rail that our decision was that we would ship only by rail. We felt there was a measure of additional safety there that was very significant. It reduced heavily the number of shipments, as you can see in the bottom comment. It also takes away the potential of interacting with persons who are operating motor vehicles who they're not pro-nuke, anti-nuke, they have no involvement in the process, but here's a vehicle going down the road carrying a hazardous material and someone drives into it. Perhaps, they fall asleep. Perhaps, they've been drinking or something that curtails their ability to operate their vehicle. It generates an incident, a potential. So, our decision was to back away from that though we'll certainly stand by the rules because, as I said, many of us have shipped that way. It is a safe way to ship fuel. But, we're talking about shipping a lot of fuel. We wanted to enhance how we did that.

Going forward, the governor brought up a security issue which I think concerns a lot of us in this post-911 era. Certainly, many fewer shipments on private property which railroads does give us better security control over a vehicle that perhaps would intentionally approach a truck.

So, collectively, our first part of our company was not to run out and try and get a license and ship fuel. It was to spend a lot of time talking with people--several years, in fact, who had done it--and determine what was the best way to do it. The best way costs more. Putting a rail line in costs more than hauling it in by truck. Shipping it by rail costs more than it may well have cost by truck. But, we didn't use cost as a criteria. We used the best way to ship it. And, if you ever saw the specific cost estimates, you'd realize just how much more it costs to do it this way than the cheapest way. We're not going the cheapest way.

Moving on, once we decided on rail, it was time to look at how we could enhance that. If you think of it, there's three components, in a sense, of spent fuel shipment. There's the container, there's the railroad, and there's the vehicle upon which the container is mounted that goes down the railroad. And, you have varying degrees of control of involvement in each one of them. So, we started meeting with the railroads to discuss what their needs were for covering shipping. Of course, the railroads are somewhat concerned about what are called mixed shipments which are mixed trains which are legal. And, I don't believe it had anything to do with enhancing revenue either. There was an interest in the railroads to see if, unlike others who have shipped, we were willing to make a commitment to single use trains so that

there were not interactive loads perhaps of pressurized gas, chlorine, or some other hazardous material mixed in with a car that carried spent nuclear fuel. So, we spent a lot of time discussing with them and we agreed, even though it added several years to this, that we would work in developing a standard because the existing standard was one, I believe, from 1964 and it didn't really prescribe what you had to do to ship spent fuel in the sense of the vehicle upon which the cask rested. We did work heavily with them and, as I said, we developed some standards that I'll get into in a minute.

The other two components are shown on the next slide. The cask that contains the fuel, remember, you have a canister with the fuel in it, but it goes in a shipping cask. That is certified as it has always been by the Nuclear Regulatory Commission. And, certainly, they've evolved their standards. They have an incredible record if you think of how much fuel has been shipped without fatality or injury to the public. But, they're always evolving; they're trying to do better. And, I think the MPC canisters and casks that have come in the last 10 years and have now been certified by the Nuclear Regulatory Commission are quite an improvement over what we used in the old days. What we had was safe, this is safer. So, basically, our commitment, as it obviously had to be as a licensee, was to obey the rules of the NRC and only use licensed containers and we're committed

to that.

The rail lines, as Governor Walker mentioned, maintain their rights of way, that second component in shipping spent fuel. The railroads over the years have evolved into a much more precise approach to maintaining right-of-ways. We are a member of the American Association of Railroads through our short line. We participate in that. Part of it, obviously, is self-preservation. The railroads don't want either the public issue of having derailments nor because most of them are having to repair those tracks at their own expense, do they want the expense. So, they've looked at the front end. They adopted a program of testing and certifying rail cars that would run on American railroads before they were allowed to run there. So, they have what I'll call a type certification. Much like our industry, they have developed their own quality assurance program, not necessarily known to a lot of people, but if you're in, at least, the last decade and you're not type certified and you choose to use a car that isn't, you can end up having to get a permit for every shipment through every railroad that you run on every time you do it.

So, the railroads have put their foot down pretty much and began to require going forward that the vehicles upon which something is shipped would measure up. And, as I go through these standards, I think, you'll see what I'm

talking about. So, early-on, we committed to develop a new cask hauling car, fuel shipping car that would meet standards that weren't even yet developed. So, you have those two inputs that go beyond the vehicle upon which it's carried.

If you look at derailments and other incidents with American railroads over the last 20 years, particularly since the Staggers Act was passed in about 1980, the rates have improved dramatically because, I think, the railroads have understood that it's in their best interest, both cost and public perception-wise, not to have derailments anymore. So, upon a time, that was just treated as a cost of doing business. It's amazing, at least to me who lives on a railroad, just how serious they are about avoiding that in this day and age.

Next slide. So then, we looked at--once those other two choices were discussed and looked at--the third area that we could impact was safety and transportation based on what the certified by the NRC cask sits on that runs over the railroad maintained by the individual railroads to Federal Rail Administration standards. FRA has standards that talk about frequency of inspections, dimensional control between your rails so far as gauging how many ties in a 39 foot stretch have to have spikes that are loose or not loose. So, they have very fixed standards. So, we wanted to, at least, equal that level of precision.

So, we looked for a new level of precision which meant we had to build cars from scratch. And, in case I forget to mention, we have built the first one to the standards several years ago. It's down at Pueblo, Colorado. I think some of you may have seen it being tested to those standards by the Transportation Technology Center which is an offshoot of the American Association of Railroads and used to be owned by the U.S. Department of Transportation. It's where the Ucella (phonetic) trains for carrying passengers on the east coast at--I think, they're up to 150 now were tested and our car is being tested there, obviously, not to operate at those speeds, but with the same precision on both rough roads, different incidents.

We wanted to use the quality control process developed by the railroads to insure that even the car when--the prototype car's welds were checked much the way we check the welds in a new power plant. There was ND, non-destructive, examination of 100 percent of the welds on that car, something that, of course, historically has not been required on rail cars. So, there's quality built in the construction. That, of course, drives the price way up. We don't need that many cars and we can afford to make them perfect or as close to perfect as we can get them.

There's also a lifetime following of those cars so they don't go out of the shop's door and then there's no

maintenance requirements. Unlike a lot of other rolling stock, they are very prescriptive maintenance requirements to insure that these safety standards built into design and construction do not degrade once the car is put in service. It's not just another piece of rolling stock.

So, we tried to develop a very conservative standard to insure that each of the different railroads that might haul it, whether it was a short line, a regional railroad, or a national railroad, could achieve a very high-level of safety. A car that is resistant is possible to causing a derailment. Remember, you can keep your track up, but if your rolling stock is not well-maintained, many derailments are caused not by track conditions, but by poorly maintained equipment that forces rails apart and derails the train.

Some of the details of the standards that we did develop--because I think it's something you need to consider as you go forward. I realize what your work is. The standards involved something that railroads for probably half a century have looked at and those are called hot boxes, determination that wheel bearings are beginning to fail. For those of you who have knowledge of railroads, on mainlines often every 40 miles or so, there will be a hot box detector, an infrared reader that looks at those bearings as they go by and sends an alarm back to the dispatcher if they see

something that's above normal before that bearing freezes up and flips that car off the rail. We have on the test car Tempkin (phonetic) roller bearings, each of them with their own transmitters that take temperature and vibration that might be indicative of upcoming failure and resistance to turning and curves and uplinks them live time to a satellite. Each of the 20 some parameters that are monitored on the car will have three standards. The locomotive engineer will know about each of these, as will the security staff and the central dispatcher. There's a level that requires you to stop immediately. There's a level that requires further inspection when you stop for refueling. And, there's a level that's put into predictive maintenance program. These cars, for those of you familiar with power plants, will use predictive maintenance rather than just a routine maintenance, failure maintenance, or periodic maintenance. These are going to be treated like their component in a power plant.

They have electro pneumatic braking. Some of us lobbied for these in a sense in the standard even though they may not be the most practical. Electro magnetic braking basically will send a--it's an overlay so the pneumatic system is always in place, but it causes the cars to stop simultaneous rather than air pressure to work its way back. So, on a long coal train, it can bring your stopping distance

down by 40 some percent; on a smaller train like this, probably only 10 to 15 percent. But, the idea is that if you've done everything right, your equipment is operating right, the railroad has been maintained perfectly, what if you do see an impediment on a track ahead? How quickly can you stop that train? And, that's a function of speed and braking capability. So, we've built in braking capability above the norm. It meant that we had to commit to provide our own locomotives because railroads do not yet have this except in certain test cases. So, PFS has to provide the entire train, not the fuel shipping car, the locomotive, the buffer cars, the fuel cars, and the passenger car that runs at the end of the train to carry security forces.

As for shelved couplers, for those of you who are familiar with the chemical industry, any rough track, a train can decouple. If there's a bump, the coupler slides up, slides down, comes apart, two cars bang together. The coupler becomes a missile that's punched into the car ahead of it. And so, many chemical cars require, at least, upper shelves on the couplers now. We require them under the standard both top and bottom. So, all of these cars, not only are they tested in Pueblo under rough track conditions, they're designed so they can't decouple and bang into each other if they inadvertently get on rough track.

Not listed on here, but we have seen enough

pictures of railroad events where you'll see the bolsters over there and the wheels over here. Unlike traditional rail cars which use gravity to hold the wheel sets together, the bolsters are fastened to the car, the wheels are pinned in there so that if this car ever comes off the track, the wheel sets stay together. They do not become a missile that can be launched into an adjacent car. So, that's another thing that obviously is at added cost, but it added a degree of safety and security if everything else notwithstanding, that car ever does come off the track. We didn't want anything that could compromise cask or canister integrity being thrown at it.

As I mentioned, there's 20 some parameters that will be live time uplinked from each car including a GPS, Global Positioning System, indication of speed velocity and exact location; a full test of the prototype; and then, full testing of the welds and construction of all the copies of it and a lifetime maintenance. As I put continuing surveillance, that's based on hours of service plus there's some other periodic ones. So, it's an overlay over what the railroad would require on regular equipment that's shipping.

So, in looking at transportation, kind of diverging back to a previous slide, obviously, we're living with the NRC standards on casks and canisters. We're insisting and it's in their own best interests to follow the FRA standards

on track maintenance, but we've tried to work very hard on the third component. The third component is the thing that, frankly, could cause the derailment no matter how strong the cask/canister is and no matter how well you maintain the track and that's the vehicle upon which the cask rides.

We took the somewhat controversial position of single use trains. That did not win us friends with several Federal agencies who opposed it, but I think we're happy to report and I'm sure those of you who follow DOE that they have announced that they're going to adopt that standard. The industry group, Nuclear Energy Institute originally had an alternative and they did turn to single use trains. So, spent fuel under the new provisions will be shipped alone in a train. There isn't going to be any mixed loads where you're not quite sure what else is sharing the train with spent fuel under that standard and we're committed to it and, as I said, took the leading role in developing it.

The other thing is route selection. Now, we had to approach this in what I'll choose to call a nonpolitical manner. I think the governor probably said it quite well when she said, well, if given a choice, no one wants anything going past their residence or where they work. That's a hazard. And, I think that's certainly a true statement. I don't care if it's a gasoline tanker going to your neighborhood filling station or whatever. It it's a

hazardous material, you want to minimize risk to the public and you should. So, once we dealt with equipment upgrade, we looked at the next process being route selection. Obviously, that's dependent on where your customers are, but we have an idea who might be customers and where those power plants are located and where this fuel is. So, a lot of us have spent a lot of time on rail route selection. Rail route selection coming out of us will be what nominally would be considered the best track, the track with the best records, the track maintained at the highest FRA standards. That may go through more populated areas.

So then, you move into the next stage of the process in risk assessment. We've proposed to the railroads initially what our thoughts are on it. The railroads own the track. Obviously, they have a say beyond ours. So, all we're doing is pointing out where it's going from, what way we suggest it goes to where it's going to be. The two of us together after modifications are put in then have to go into what I'll choose to call the regulatory process; Nuclear Regulatory Commission, U.S. Department of Transportation, and what I've chosen to call the stakeholders which basically are state and local governments and could be other organizations. Ultimately, they have the final say-so and we have to live with their decision. So, in fact, what one of you asked as a question of the governor is a process that will be involved

in how the fuel is shipped, what route it goes on. I doubt there will be total agreement between all parties because no one necessarily wants this in their backyard, to use an older phrase, but it's something that has to be done. So, we'll try to do it in the best way we can.

As you move off the best track onto lesser maintained track, you have to address those issues. If that avoids a population area, what's the integrated assessment that those groups working together are going to have to come up with? You're not in a position to build new railroads even though that was alluded to because of the fact that with today's environmental restrictions, building new railroads is virtually something that isn't done any more. I believe Yucca Mountain can pull it off, but in general, it's not something that's done if you've watched the one coming out of the coal hauling areas of Wyoming. It's been six, seven years and it's not through the EIS yet. So, people don't want necessarily a new railroad built even if that were cost possible. So, we have to live with the resources that we have, the time we have available on these tracks, and the mission that we have to carry out which is to get this fuel in a centralized place where we can segregate it and watch it and wait for that national repository to be finished.

So, final say ends up at the bottom and the Federal agencies, obviously, are under the control of our elected

public officials nationally, Department of Transportation as a cabinet level position. Each of the states have their own stances and those of us who have dealt with the regional groups are well aware of what many of them are. And, there will be tradeoffs, but in the end, it will be the employees of the state working with the employees of the Federal Government who are going to make the final decision and that's what we will be living with. All we can do is suggest. And, I'll just tell you that our suggestion will be based on the highest safety factor that we can calculate in.

So, the total concept is basically--and that would be the next slide--safe equipment operating on an optimized route. I use the word "optimized" because there's a nonpolitical sense to it. In this sense, that word involves the politics of each municipality, each state and their decisions as to where they want things to go. We can certainly control making sure the equipment that it rides on is as safe as possible and that's one of the two things that we've worked on for a decade and we think we're there.

The NRC has had--frankly, I know they're often criticized, but they're a pretty strong Federal agency and they've got a pretty admirable record in their certification of casks such that the rail lines, the third leg of the component, and their maintenance have long since ceased not maintaining their track. You may remember back when they

were on the ropes in the '60s and '70s before reform. There were a lot of tracks that weren't maintained well because, frankly, they didn't have the money, but they've put in an extensive amount to upgrade them and that's a factor in how you route. What is the maintenance record, the event record, the traffic frequency over each of those tracks? Their level of upkeep is a matter of public record. The FRA or the standard they're kept up to is a published fact. So, you know, anyone can go and look at it. As you diverge from the best track to consider other concerns, such as public concerns along the way, then you have to consider, obviously, the integrated impact of going to a lesser track. So, all of that is part of the process.

We've spent a fraction of our lifetimes trying to make sure that this happens and happens safely. It's not something done lightly. We've had a lot of public participation. We've long since realized that this country will never be unanimous on this, but it's not unanimous on many of the major technical decisions it's had to make. So, I think that's an expectation that we could reach anyway. All we can do is listen to people, try to make sure that our final decisions are based on what's best collectively for all, and as the governor mentioned, aren't weighted against those who have fewer votes because that's certainly not our intention.

Going forward just to tell you a little about schedule, this year, we had the final hearings on the project and these involved the failure rates of F-16 aircraft operating in the valley and what the impact would be if they impacted a cask. Those were closed hearings because of the obvious safeguard concerns. We have to meet, as power plants do, the external event ratio of 10^{-6}, they're one event in a million years or better, and we feel we have done that. That's a decision for the Licensing Board. The Atomic Safety & Licensing Board of the NRC will get its final filings on that from the State of Utah which is, needs to be mentioned, is an intervenor, from the NRC technical staff representing the public, and from us, the applicant for a license, some time late this month. There will be responses in early November and the Board Chair has promised a decision on this one way or the other by January 19th, 2005.

Moving on, construction of the prototype is done, a part of the testing is done. We would fabricate equipment in parallel with construction of the site if we're given a license and if utilities wish to use the site. Again, the fabrication of these cars, the prototype was done at a special shop in Ohio. They have a lot of pride in what they do. We get a package with it much like you would with a reactor vessel that shows all the weld conformance and testing that's been done when the car is turned over. We

would treat our rolling stock much the same as we in plants have learned to treat what we used to call in the old days safety related equipment which is now called important to safety.

Operations following construction is on the next slide. Basically, a startup--and this slide has got an old date and the governor mentioned 2006. It's actually 2007. So, we would be looking at a 2007 startup date at the earliest. But, we have to comply with all the stuff in the meantime. We have to get a license, we have to build a rail line in, we have to get routes that are approved for the shipping through the U.S. Department of Transportation and the Nuclear Regulatory Commission after their consultation with the states and municipalities. So, one can put dates up there and talk about them and you could put any year up there you wanted. We still have a lot to do and all we can say is that we're trying to do it with the same meticulousness we spent the last decade on this problem. We've been at this since 1994.

200 canisters per year would be our nominal shipping. Our license capacity would be 4,000 canisters, 40,000 metric ton. About a year and a half ago, that's what had built up in the United States at different sites, 40,000 MTU. We produce about 1900 MTU new each year. So, as was mentioned by Governor Walker, there are issues with the

capacity long-term of Yucca Mountain. This is not an alternative permanent repository and we're not interested in being involved in the long-term storage of spent fuel. This is strictly an interim site. It's up to the nation to decide what the capacity of Yucca Mountain is to be, if there's going to be Yucca Mountain, or what the alternative is going to be. We're simply a small part of the process trying to focus on a viable interim that brings those 72 locations into one while we wait for the permanent one, wherever that permanent one may be.

Questions?

ABKOWITZ: Thank you, John. I see hands all over the place. So, let me start with the first one while I have the podium.

First of all, that was a lot of very valid, valuable information from a transportation perspective. I appreciate your focusing on that. I was taken by the level of detail that you were articulating some of the issues that have to do with rail car design and working with the railroad industry as a whole in coming to terms with what the issues are from safety and security and logistic standpoint. Has the Yucca Mountain Project, the DOE folks, had any dialogue with your operation in terms of benchmarking and gathering information?

PARKYN: Well, we've tried to provide them with copies

of everything we've done. You know, we've certainly had dialogue on a person-to-person basis. We work very hard with them to get an endorsement, let's say, at the concept of single train function because originally that wasn't in there. So, I would say there's dialogue. I don't know precisely what their final standards will be, but a lot of us, of course, have worked on what's now called Yucca Mountain for--I worked when the Act was passed in '82. So, we've tried to work with them in every technical basis we could to insure them. They've asked about using these cars and, of course, you know, we've certainly told them that we'll be happy to provide the shipment from our site to Yucca Mountain on that equipment on any schedule they want. So, they can actually pick the individual casks and what day they want them and we would put the trains together that way. If they want to do it on their own and use our equipment, they can do that, too. They've talked to us about license and the equipment. They can certainly do that if they want to build their own copies. So, you know, we've tried not only to provide them information, but every step of the way indicate we're not in competition with them and why would we can to do this twice when we can do it once and hopefully get it right?

So, I guess, my response is we've tried to dialogue with them. They have some constraints, obviously, and some political limitations of what they can get into, but we've

been open to any phone call, we've been at a lot of sessions with them, gone out to the site a couple of times at Yucca Mountain and talked to staff. So, it's pretty open. I mean, we haven't kept anything from them. I mean, they've seen the rail car and everything.

ABKOWITZ: Thank you. We're going to go in the order of John, Ron, Howard, and Andy. Dr. Garrick?

GARRICK: Garrick, Board. I want to ask a question that's really a precursor to the transportation issue. Did the selection of the current site evolve from a systematic site evaluation process and could you just comment on that a little bit?

PARKYN: Well, we had a site evaluation process that looked at a number of parameters. First, of course, we were looking for a site that had a certain remoteness from population centers, that did not have surface water anywhere near it, and did not have groundwater near the surface. Then, for the transportation component, we had the 40 some sites that were originally looked at and 30 some of them are listed in the license application. We looked at the integrated shipping mileage, getting back to the concern that was mentioned previously of double shifting, and, of course, our location to most of the potential western sites minimized very heavily extraneous shipping in terms of distance. So, we wanted an integrated approach. We did an analysis. If

you see the EIS, there were like four final sites and one of them was north, still a western state, but north. That added, as I recall by memory--I did some of that myself--40 some percent additional shipping miles. So, the final site selection had a heavy component of minimizing shipping. And, again, that's not a concern specifically about cost, it's a concern about exposure during shipping.

GARRICK: Okay, thank you.

ABKOWITZ: Ron?

LATANISION: Latanision, Board. The corollary question is how did you go about acquiring the land? I mean, what was the--

PARKYN: Well, we asked--I don't know how many of you are familiar with the whole process on spent fuel. You may recall the decision by President Carter to stop reprocessing that sort of got people thinking about what they were going to do. Then, you may remember the 1982 Act called for an interim site at Oakridge, Tennessee, and that was deleted by an amendment, I believe, in the last '80s. The voluntary host program came along. I may have the title wrong. And, I believe maybe Richard Stallings--he was a former Congress member from Idaho, I believe he was a democrat--was appointed as the first waste negotiator. So, he went around and began looking for voluntary sites and there were 40 some in the first round. I think it was called the first round and then

they had a second round and it was down to 10 or 12 when Congress shut it down.

So, we took the same approach. We were looking for a voluntary host realizing we had to do a site assessment from a safety viewpoint and transportation assessment. So, we had voluntary host suggestions that were on both coasts. We had one that was, frankly, a Pacific island. So, we had to look very heavily when we consider all these about the practicality of transportation. A common site was a voluntary host program, remember, both at Level 1 and Level 2 with DOE, as were at least two of our alternative sites in the final eight and many of the original DOE voluntary sites came forward and we looked at them.

So, the site selection, we set the standards first, then we looked for potential hosts, but we balanced each of the potential hosts off against those standards. And, as I said before, one of the main standards is shipping. And so, that was a pretty--you know we looked at proximity to the mainline rail so that we'd minimize the additional rail or heavy haul trucking. We looked at issues like where were the most likely sites under the High-Level Waste Act for an underground repository and, obviously, it became apparent as that process went forward which half of the country that would be in and then which site when they got down to three sites. So, you had to try to give that some pretty

significant weight over, say, as opposed to an east coast site that had put in for our consideration.

LATANISION: Just one additional question. One of our interests in hearing your testimony today is from the point of view of lessons learned that will have an impact on the Yucca Mountain Project. The implication of what you've described in terms of the rolling stock, I mean, the implication is that you folks do not feel confident that the current rail cars that are available are adequate. You're taking a position that you're building your own. Is that a correct implication?

PARKYN: Well, you have to understand that there isn't a real rigorous standard on what rail cars are used historically.

LATANISION: Yeah.

PARKYN: So, our feeling was and you're putting me sort of in the safe versus safer stance. I mention they haven't had any events which I think is phenomenal.

LATANISION: Right.

PARKYN: But, we had to look because we were proposing something more significant at one time as to how we could minimize the chance of that. And, in looking at it, the weakest component appeared to be, what I'll call, off-the-shelf cars. You know, cars that have other uses that are converted perhaps for a period of time to all spent fuel and

then go back to something else. So, our feeling was that for this national effort, whether you're talking DOE at Yucca Mountain or wherever the underground repository may be or for us, that you could really enhance safety and reduce risk more by going after that than the other two components. I mean, the NRC, whether you like them or not, can be a bear and I'm sure they've been a bear on those vendors that put those canisters forward. So, that was outside of our purview.

As I mention the railroads, I work a lot with AmTrak through the National (inaudible) Passenger Corp. and, of course, hauling people is considered the highest safety standard you have to meet. So, we borrowed from that. And, I've noticed the high concern we have when we put people on a car and the railroads are starting to come up with their non-people cars to a higher and higher level just out of practicality. So, we focused on that because historically there hasn't been that high a standard set on. It's worked, but the idea wasn't necessarily to condemn what's out there now, but to see how perfect we could make it.

LATANISION: Uh-huh.

PARKYN: Because you're not talking many pieces of equipment. So, even though the price on these--you might describe it as outrageous compared to a flatcar which is what they really are--you're only talking about a small number of

them. So, you're able to, we'll call, spend your money pretty wisely to drive that level to a new threshold of perfection. So, if it's talking to you while it's moving, each individual car, and saying, you know, my--these are effectively 80 foot cars bolstered down so they bend and behave like a 40.

The first thing we did is a bunch of us analyzed rail car trucks and with weight to get the weight per axle down. We would have liked to have gone to three axles. You know, I met with the manufacturers of locomotives who have three axle trucks often because of locomotive weight. Derailment problems with three axle trucks are higher. So, these cars have four trucks, eight axles. If you see them, they look a lot different than a regular car plus they're able to bend. All of that decreases the ability to pop a rail off and cause a derailment because it reduces the pressure on the rail. And, remember, it's not like steering your car. The rail forces the wheel on the car to turn when yo go into a curve. So, your main concern is making sure that you're sensitive--you know, the railroad keeps the railroad up. What do you want to do to reduce the chance that you're going to bust that out when you get into a turn and that's a function, obviously, of speed and how perfect that equipment is to respond to the pressure that it's getting from the rail to turn right or left. So, just going

to four truck cars, going to eight axles, pinning them all on the car reduced derailment chances. So, I don't think a lot of that detail was looked at historically in shipping spent fuel because they haven't really built a car that's specifically for it that we were able to find.

So, again, I'm not here to condemn what they're doing. We just tried to take it to a level of--cost wasn't so much of an issue because we were building so few of them and we're going to use them multiple times. Why not try to make them as close to perfect as you can get?

LATANISION: Yeah, thank you.

ABKOWITZ: Howard?

ARNOLD: I'm interested in having you expand your views about the use of the canisters themselves at Yucca rather than having to repackage in a totally new canister.

PARKYN: Okay. We had what was called the MPC approach and I know there are some--and I can't speak for DOE. I'm not part of DOE. I know there's some looking at it now. So, whatever their end point is, I've always been an advocate personally--and I'm getting outside of PFS and shipping fuel\ --that fuel should be handled once at the site by the operators who have the background and training to do it and then it should be encapsulated. I've handled fuel in traditional casks where you have to handle each assembly and put a cover on and test the double seal. And, I think the

MPCs take it to a new level of safety.

So, when we looked at our site, we were told by our hosts as we got down to the last few choices, we weren't going to be handling fuel and we didn't want to. But, that came from the hosts, in this case, the Goshutes, not just from us. And, it became so logical that we kind of went away from the dual-purpose cask, transportation and storage, back to the original Federal concept of the MPC. That's your least dose for the people that have to work where the fuel is ultimately going to go. It's the least chance of having a risk. And, if you ever look at fuel dropped accidents and other issues like that, it's a good thing to avoid. As you look at the age of fuels, it gets ever older which I believe the governor alluded to, too. How late in its life do you want to start rehandling it, how much do you want to mix different types of fuel, perhaps a PWR in a boric acid environment being handled in the same facility with a PWR that hasn't been exposed to it? So, the idea that many of us have--and it's a decision of the DOE and the Federal Government, it's not up to us--was to try to see if there was a way to go back to the original concept and avoid that.

The original concept was to take the MPC, package it, store it at the site if you had to at the Oakridge interim, move through the transportation casks as it was moving from place to place, but that an overpack cask would

be designed for what we now call Yucca Mountain that would be the principal barrier against the environment and the MPCs would be inserted into them. I think some of the issues have evolved into the thermal loading, you know, kilowatts per package, higher burnup fuels, as they call it, the mixing and matching. The issue, of course, is handling of the fuel and extra time of what that will certainly do to the intake rate of any Yucca Mountain, wherever it's built, and the issue of people trying to handle all kinds of different fuels where in our industry history most people just specialize in not just fuel. Every one is a different length, different height, has a different grapple on the top. So, that was something that, as I said, the project decided on as one of her choices; MPCs, no handling of fuel. Some of us in the industry who have spent a lifetime at it who have actually handled fuel and had licenses to do it still subscribe to that. We think that's the ultimate way to decease risk and we hope that when we're done that we're able to come up with a way for the underground storage not to have to keep rehandling it.

ARNOLD: A corollary question, you then have no fuel handling facility at your facility. You must have some monitoring decontamination ability to put on an overpack, if necessary, or something.

PARKYN: Yeah, right. What we did is we put in in our original application to the NRC, it will have dry transfer

capability which would be the capability to handle fuel with (inaudible). And, we will have that as a recourse, if necessary. Several reactors--I don't know if you're familiar with Hallum (phonetic) in Nebraska which operated for a few years, Nebraska Public Power. Several of them, that was the regular fueling mode. So, if we would ever have a canister failure that required repackaging, that's the approach that we would take would be to place it in a new canister. Our goal is through quality assurance in the manufacture of the canisters having our staff on site when any utility loads one or seal welds it shut to make sure that there's none of that.

We also have a provision in our service agreements that if you think of the canister outside, you know, it's the same dimension as the unique grid inside that fits the dimensions of the fuel. The outside is all the same. When it's in a transportation cask, it's totally enclosed. If you ever look at storage casks at a reactor site, PFS or for that matter Yucca Mountain, storage casks remove the thermal heat by ventilating air past it. That air passes over the outside of the canister, not the outside of the storage cask. So, your absolute control has to be that the outside of the canister must not have spreadable contamination on it or you're going to have contamination of the site. So, in our license application to the NRC, that was basically our commitment. As canisters are handled at reactor facilities,

they have to be absolutely pristine on the outside before they're released or there's a rather heavy financial penalty in the service agreement. Basically, we will not have a contaminated site. If you're running a power plant, you have certain areas where you have some contamination inside the buildings and that's part of what goes with making electricity with steam. That's not the same, storing fuel. You do not have to have any on-site contamination, at all. If we get a cask that has contamination, we will not put it in the storage pack until it is totally decontaminated and the bill sent to the utility who sent us a contaminated cask.

ARNOLD: Yeah. Has DOE consulted with you on this sort of issue?

PARKYN: Not really, no. You know, we are not shy about, as individuals, certainly making our opinions known because we'd like to see Yucca Mountain, wherever it is, I guess, to be nonpolitical, go without a glitch. You know, we don't want to see fuel handling incidents. We don't want to see surface contamination. And, we want to see an intake rate that's above the annual production rate of our reactors. So, we're actually really cleaning our buildup up, not just creating more.

ARNOLD: All right. Thank you. This has been very useful.

ABKOWITZ: Andy?

KADAK: Kadak, Board. Hi, John.

PARKYN: Hi.

KADAK: I had a couple of questions, John, relative to what the governor said. In particular, she said that there would be no emergency preparedness or planning for first responders. Can you just clarify that because--

PARKYN: Well, you know, we will offer training. I think you've been in a power plant and I've shipped fuel. Of course, we've always had training for people along the way. When the High-Level Waste Act went through, it had a requirement in there that when DOE got into the business, it had to offer training. I think there's somehow a misunderstanding that we won't offer training. And, I guess, our interpretation has always been that we have to. We've always done it. You know, I wrote the emergency plan for the LaCrosse Reactor in the end after it had to be redone after TMI and I did a lot on the emergency plan for this site. So, there's never been any intent not to have training in the same approach we've taken at power plants or in any of the other fuel shipments that we've run. You have to train locally and it's not just having public means to make people feel good. It's actually training the firefighters, the deputy sheriffs, whoever that local community is going to designate, because I'm sure you're aware that we have national response units that DOE has trained, whether it's

defense material or whatever, that can respond to an event. It's training the people who are going to be the real people. I was a deputy sheriff for 15 years. We're the ones who will get called. And so, you have to go out and provide emergency training. Obviously, if one of these cars some off the rail line, what you don't want to do is get involvement of people. You are isolating it until you get people there who can correct the situation. So, you have to put training in to insure that a mistake isn't made by people who are trying to make things right in the local community if a train ever does go off the track.

KADAK: Another question. In terms of route selection, where are you relative to that process and are you getting participation from the stakeholders in terms of making those decisions?

PARKYN: Well, we haven't made decisions yet because we haven't signed service agreements. I started a long time ago getting the rail line maps, then the annual shipping reports, and then talking to some of the railroads. When we talk to the state coalitions like the Midwest Council of State Governments, it's to report where we are. Yeah, some of the individuals will say where are you thinking about going through my state and we'll certainly tell them. But, it's not a published Federal plan because we don't have a license and because we don't have specific customers yet that would

ultimately determine it. But, if you're asking do I personally or some of us working on it have an idea where we would ship it, certainly.

KADAK: The last question is relative to numbers of locomotives and cars. How many do you think you'll be needing to ship the 40,000 metric tons?

PARKYN: Well, I'm hoping we don't. I'm really--I'm still pro an underground site. So, I'm hoping we never handle 40,000. But, we put it in our license. Initially, in the two segments of buildup, if we get that many customers, it would be about 13 transportation units. I know DOE is looking at between 20 and 30, but I guess we have a little higher optimization in mind on ours. We sized it so it could handle 10 to 12 loaded cars and then we decided--I guess I did--that we would put a second locomotive. I don't know if you're familiar with passenger transportation, but legally you can run with a single locomotive, but what happens if the locomotive has a problem? You've got 300 people stuck out in the middle of nowhere. So, it's generally good to run with two. So, we decided that we would size the locomotives and we'll probably use SB40-2s so that they can handle the buffer car between the first fuel car and the last fuel car, they can handle the passenger car, and they can handle that number of fuel cars up to 10. And, they can take one of the two locomotives dying and continue to operate. So, the idea was

we had to--we've single theory proved it in the sense that we made the assumption no matter how much money and time we spent that a locomotive is going to stop somewhere someday and that the locomotive that was left running had to add that as another dead load to the fuel cars to keep it moving because we do not want these trains stopped somewhere blocking a highway, you know, inviting some real public concern because we decided to run cheap and put one locomotive on the front of it. So, we'll always have two locomotives.

KADAK: So, let me see if I've got it right. You're going to have trains with two locomotives, up to 10 fuel cars, and how many of those units would be 13, you said? I'm trying to find out how many locomotives you're actually going to be buying and rail cars you're going to be buying.

PARKYN: Well, we'll probably be buying somewhere between 10 and 13 rail cars just initially.

KADAK: Okay.

PARKYN: We've debated whether we're going to have two train sets or one. At least, initially, we'll start with one. Security cars, of course, are basically older passenger cars that are revamped. You have to meet the--they call them the AmTrak standards. Like in this country, you have to have an 800,000 pound crush resistance. Europe uses 400,000. So, that protects the people inside. We'll meet those standards,

but then we'll rehab the car with the same instrumentation the fuel cars have to make sure that the passenger car at the end doesn't become the cause of train derailment.

KADAK: Thank you.

ABKOWITZ: Abkowitz, Board. John, I'd like to follow up with a couple of questions. Could we go to Slide #11, please? I was looking at this as your standard and I was trying to think through operationally what this means. It seems to me some of these improvements are made to the car themselves, some are made to the locomotive, and some are made to the track infrastructure.

PARKYN: Well, mostly, these are the cars and the locomotive. Okay. Now, remember, the track infrastructure has built in the ability to determine if a bearing is getting warm about every 40 miles, if I remember right, maybe it's 50. The on-line one would be continual. So, that's independent of the track. So, it would always tell you if a bearing were beginning to get a little warmer than it should, if it's starting to vibrate a little more indicating that it's got a precursor to failure in it. Electro magnetic braking has to be on every car. Now, they have an overlay now for long coal trains where they can mix electro magnetic braking and non-electro magnetic braking and that's one thing we insisted on that if we would lose that system control function in a locomotive that the train continues on. It

just reverts back to its air brakes. So, it's never less safe than it is now, but it doesn't cause a stoppage. So, part of the principle in all this was it cannot cause the train to become dysfunctional and stop wherever it is.

ABKOWITZ: Okay. So, in essence, then, the way that Class 1 railroads have already outfitted their rail infrastructure, you believe that that's sufficient for that aspect. So, there's no new enhancements that need to be made--

PARKYN: I don't think--

ABKOWITZ: --to the hot boxes or any of the other surveillance--

PARKYN: No. If you think about what's being carried on the railroads today and the threat to human life, we carry a lot of hazardous materials that way. Perhaps, at one time, they were carried on trucks, but the rail does give them the isolation. So, they're used to carrying cars, obviously, that have compressed gas in them, that frankly have poisonous gases that turn into acid if they become airborne. So, each railroad has an overlay for HAZMAT shipments. I don't know that it's published, but several of them have given them to us. So, that's factored in, too. And, they try to insure that maintenance is as perfect as they can get it on those. So, what we're trying to do is, I guess, compliment their maintenance. Like shelved couplers, we don't necessarily

expect to be on rough track. Shelved couplers probably didn't add $300 a car. So, if you add a safety feature like that, even though maybe it's one in a million that you'd ever get one of these on rough track due to something happening with the train ahead of it or something, you put it in there. So, in a sense, shelved couplers on the car, but it protects you against a track anomaly that you don't anticipate so you can't suddenly decouple and have part of a train, you know, up here and then part of the train back here. Trying to test each car and service, I think, is the best--once you set the standards, they're meaningless unless you make sure that every fuel car has them and that they're maintained to that standard. So that as they age, they don't--sort of like plant aging. So, we sort of gave them the cradle to the grave concept of they have to be to these standards as much at the end of their useful life as they are at the beginning.

ABKOWITZ: My other question is--and this is really more clarification--in terms of who owns the waste when it's at the PFS facility--

PARKYN: The utility.

ABKOWITZ: I'm assuming it's still owned by the individual utility?

PARKYN: It's owned by the utility.

ABKOWITZ: And, that's part of their waste acceptance inventory, so to speak?

PARKYN: Yeah, uh-huh. From the beginning, you know, we met with the NRC and the concern is that the generators retain title until such time as the Federal Government would take title, wherever that may be. So, title doesn't pass to PFS and that was an early concern, I think, of some of the people in the state. Well, you know, here's going to be this company owning all the spent nuclear fuel in the country. What assets did it have? Basically, those of us who work for utilities and are in them realize that we have ownership of it until such time as that portion of the High-Level Waste Act is implemented and the government really has a weighted take title which is pretty well-tied to a permanent repository. And, you know, a lot of that is in Court right now and what they should do and what they shouldn't do and we at PFS aren't involved in that even though we've been subpoenaed and the records have been subpoenaed and the damage claims.

ABKOWITZ: Thank you. Carl Di Bella from the Board Staff, I believe, has a question.

DI BELLA: Thank you very much. All my questions are about rolling stock and they've already been asked and answered.

ABKOWITZ: Okay, great. Great minds think alike.

Ron, and then Andy?

LATANISION: Latanision, Board. This is again from the

point of view of lessons learned. Your licensing application has been in the works for about seven years now, as I understand.

PARKYN: Uh-huh.

LATANISION: A, what's the current standing or status, and B, what surprises, if any, have you had to deal with?

PARKYN: I guess, I haven't necessarily been surprised. We had hoped for a faster turnaround, certainly. The Chairman of the Nuclear Regulatory Commission at that time was Shirley Jackson and, you know, she had hypothesized a 24 to 36 month turnaround for a central facility and, of course, she was principally talking about one at what might be Yucca Mountain. That's before the site was selected. I think one of the lessons learned is that we stopped building power plants in this country over two decades ago. I mean, that's just a fact of life. At least, nuke plants and we actually haven't built that many coal. So, the NRC as an organization was an enforcer, more perhaps than it was a licenser because they've been almost 20 years without running a major license.

So, I think one of the lessons learned and I think they learned it, I noticed at our hearings out here most active people had never seen a hearing. So, the State of Nevada was here, DOE lawyers were here. The NRC in a sense had to retrain. So, many of their positions were backed up by younger staff who weren't even employed by them the last

time there was ever a license application. So, in a sense, we became a test run for what we call Yucca Mountain. In other words, we had a genuine new license application come in two decades after the last power plant or stand alone site and it was an opportunity to test the entire process. As I said, it took longer. It certainly pointed out the significance of having public involvement and the need to clarify that public involvement and comments are on implementation of the standards that we've collectively agreed on around the country rather than putting nuke power on trial every time there's a hearing. And, you know, the hearing board chair had never chaired one of those before. So, that was certainly a lesson learned in getting at the length of time it takes to license.

Understanding what it took, I think, to ship fuel and trying to come in concurrence with the railroads moderate concern about equipment as opposed to what some of us who shipped fuel with rail 25 years ago, you know, when Morris was filling up, was certainly a lesson learned. The railroads are not just treating this as a load. They're very interactive with you and you've got to put the time in with the railroads, with their association. A comment was made-- and I don't mean this to be derogatory towards DOE or the government, but they had to have joint committee meetings for 10 years when we started with them and there's never been a

single decision made and they didn't want to waste their time with us unless we were serious about it. So, I think even the infrastructure had gotten frustrated with how long it was taking to resolve this issue. From the railroads' viewpoints, this isn't a lot of load. You know, once it's shipped, it's done and it's not a growth industry for the American railroads.

But, from one of the union guys once who had a train go off track at our coal plant, he said, you know, we really don't like those new plants. They're going to put us out of work. Coal is 39 percent of our load and this is a competing energy source. So, dealing with the railroads, whether it's DOE or us, you have to work with them and they recognize they have a responsibility to ship it understanding that you're not their most desirable customer and you'd better work with them. And, you'd better give into them sometimes when they want something that maybe you think costs a little more than it should or it isn't necessary or you're not going to have their support.

We volunteered to be a part of--I don't know if you're familiar with the accident that occurred years ago with AmTrak and the Federal Locomotive Engineer's License that came as a result of that. There had been some use of controlled substances, I guess, and a freight train plowed into a train carrying people. So, we told them, you know,

that we would not only provide training for the engineers, but we would be part of an ongoing educational process that allows those engineers to keep their licenses up. So, if the person running a train that happens to have spent nuclear fuel rather than cars full of grain behind it, they know exactly what it is. We're not proposing they be a first responder or they run around with radiation detectors, but you've got to put a lot of effort in with the railroads because these are regular real people working shifts. You know, there's time limits and overtime and stuff now just like power plants. But, they've got to be comfortable with it.

We had an incident a half a lifetime ago in Iowa, you may remember, where a spent fuel car was put on the side because they didn't want to haul it. I don't even remember where it was going. But, you've got to work with the railroads and they've got to want to work with you. And so, you've got to put a lot of time in.

LATANISION: In terms of the past forward, what are the issues that the NRC is still trying to resolve and when do you expect to have a, you know--

PARKYN: Well, we had about 100 roughly--and Connie is back there--maybe 168 contentions. They weren't number quite that way. And, there were probably hearings on somewhere between eight and 12 of them. Some of them, we came to joint

agreements on. Some of the Board didn't (inaudible) the threshold. Some were dismissed. Within the subset of external events, aircraft crash was an issue. So, we got down to the end of 2003 and there were just two out there that hadn't been dealt with at either level. One was under the Environmental Impact Statement, whether our choice of the alternative for the routing of the rail line was appropriate. The Board hadn't ruled on that. And, the other one was under the 10^{-6} criteria of external events. We said that we met the 10^{-6} with F-16s, the state said we didn't, the technical staff said we did, but the Licensing Board in looking at all the evidence decided we didn't. So, that decision was in March of 2003. So, we ended last year with those two.

The Board ruled, I guess, it was the last day of last year, against the state on the routing--it wasn't the state, it was the other environmental group, the Wilderness Association, on the routing. So, that left the aircraft crash. So, submittals were made in the spring by the state, by us, by the technical staff. The hearings were held--I think they started August 9th. There was a split. They came back in September. These were safeguarded because of the concerns that suggestions might be made, I guess, about flying things into things and so they were held in Washington. I think the last day of hearing was September

15th or 16th.

So, last November, the Commissioners, as opposed to the Licensing Board, notified all the parties if they wanted reconsideration of any Licensing Board decision on contentions that weren't heard that they had to submit by a date in September. The state made a submittal. We had a rebuttal. The Commission ruled in, I think, it was March that all, but three of them they stood with the Licensing Board. They wanted additional briefing on three of them. We all did that briefing and they ruled in late August, as I recall, that they concluded the Licensing Board was right. So, really, down to that one contention.

In parallel, there were two Court issues. The state basically opposed our project and some transportation issues with a series of state laws over about a three year period. A Federal Judge in Utah ruled against the state and I think that was 2002. That was appealed to the 10th Circuit Court of Appeals in Denver. There was another intervenor group that filed a legal action claiming that the NRC had lost the right to grant 10 CFR 72 license off reactor sites when the High-Level Waste Act passed.

So, a different Federal Judge in Utah took the opposite side and ruled in favor of the NRC. I believe it was in 2002. That was appealed to the DC Circuit. So, the DC Circuit heard the Right to License case the day after the

Yucca Mountain case and they did rule in February that the NRC did have the right to license through that.

The 10th Circuit ruled in August that the Federal Judge was correct and that the state laws in a sense were taking, you know, over of an area that the Feds had preemption in. So, right now, we're at that particular point where a lot of the focus is on the Licensing Board decision on that one external event which would be aircraft impact, that one type of aircraft.

LATANISION: Okay, thank you.

ABKOWITZ: Okay. Andy Kadak, you have the last question.

KADAK: Thank you, again. Kadak, Board. As I understand it, you'll be taking casks or MPCs from different types of reactors; boiling water reactors and pressurized water. They're of somewhat different design in terms of size. And, you're going to be providing transport casks to each of the types, is that correct?

PARKYN: Well, the types, Andy, are not unique external. There's one exception. The one Texas reactor has that extra long fuel and no vendor has really put forth a canister--I think it's the South Texas Project. So, any other reactor would be envelope size-wise within the dimensions of the currently certified equipment. The canister racks inside would accommodate the different lengths and dimensions of

fuel.

KADAK: So, you will then be handling the canisters dry and then putting them into some storage overpack interim facility?

PARKYN: Uh-huh, correct. But, they would be--there's no uniqueness of one that would have BWR versus PWR because externally--you know, internally, PWR capacity is about 32 assemblies; BWR capacity because they're smaller is about 68. But, externally on the canister, they would be identical.

KADAK: Same dimension. What I'm interested in is for the transport cask, what do you typically expect to see for surface or 2 meter doses?

PARKYN: You know, I don't remember exactly what that number is. You know, there's a Federal criteria--

KADAK: Well, I'm just looking at--

PARKYN: --well below that, but I--

KADAK: --what might be the actual number because everybody is using these RADTRAN codes with the maximum limits and I'm just trying to get a feel for what the actual number would be, but you would not know?

PARKYN: I just don't remember off the bat. That one, I'd have to check. Obviously, a lot of that depends on fuel loading. You have not so much thermal--you have thermal limits of how much heat you can have in there. You also have the radiological limits of the burnup of the specific fuel

assembly, how long it's been in the reactor, and therefore how much radiation it's giving off, how long it's been out of the reactor, how many of those you mix with older fuel in a canister. And, now, there's a subset of that because some of the canisters because they have circumferential rows can self-shield, say, a hotter radiological assembly placed in the middle and reduce the outside exposure to placing it in the outside. So, you have to--if you want to back down below the Federally allowable standards to something lower, then part of it is the picking of assemblies and the loading pair that you use to try to get ever lower below the regulated maximum.

KADAK: Okay, thank you.

ABKOWITZ: John, thank you for your presentation and your comments.

We're at the break point here. I just wanted to mention that when we return, it will be the last part of today's session which includes a public comment period. Alvina and Linda in the back have the public comment signup sheet. So, if you do wish to comment during the public comment period, please, sign up.

We will reconvene in 15 minutes which will be at 10:10.

(Whereupon, a brief recess was taken.)

ABKOWITZ: Okay. If I could ask everyone to take their

seats.

In this last part of our meeting, we have essentially two topics. We have a formal presentation I'll be introducing in just a moment and then we'll have our public comment period. I believe we have a considerable number of public commenters based on the information I've received, so far. So, we're going to try to run this in a pretty tight time management situation because I do know that several of you have some airline connections to worry about.

Our next presentation is going to be on the issue of risk perception as it relates to the transportation planning process. We've all read and heard a lot about technical risk being at such-and-such a stage and the perceived risk being at some other place. And, here to try to help us understand what drives risk perceptions and how we can try to address that as part of the transportation risk management is Ken Niles. Ken is the Assistant Director for Nuclear Safety for the Oregon Department of Energy. That particular program focuses primarily on the cleanup of the Hanford Nuclear Site, in addition to safe transport of radioactive materials to Oregon and the emergency preparedness in the event of a nuclear accident. Ken has been with the Oregon Department of Energy since July of 1989. He is the co-chair of WIEB's high-level waste committee which works on transportation planning for Yucca Mountain.

Prior to his work with the State of Oregon, Ken spent 11 years as a broadcast news reporter working in both radio and television.

Ken?

NILES: Good morning, everybody.

Is this what we can expect to happen? Is this the type of thing that as Yucca Mountain shipments draw ever closer, we can expect this kind of response? Some citizen activist groups have vowed that the demonstrations in Germany--and that's some of the pictures you're seeing here--that those demonstrations will be dwarfed by what will happen in the United States. And, keep in mind, some of these demonstrations in Germany numbered in the tens of thousands of citizens. I think at this point that large of response would surprise many of us, but at the same time, there's a lot of things that could happen as we draw closer to the beginning of shipments and a response like this is not entirely out of the question.

Next slide. We've already seen concerns about risk and the issue of the risk of transportation used to try and stop the Yucca Mountain program. When Congress was deliberating the issue of whether or not to approve Yucca Mountain, the mobile Chernobyl express folks were making their way to a highway near you trying to raise concern about the transport of radioactive materials as it relates to Yucca

Mountain. Congress didn't go forward with stopping this. They did go forward with approving Yucca Mountain. But, this drew a lot of attention, drew a lot of focus. There was a lot of attention given to this and I think in some respects this does give us, at least, some indication of some of the things we can expect to continue to see happen as we go forward getting ready for shipments to a Yucca Mountain.

I was asked to talk about risk perception. Why it is that things nuclear do draw such critical attention and raise the concerns of the public so much. What causes it? What perhaps can be done to help alleviate some of that concern? There is some lessons we can draw upon. The shipments of transuranic waste to the Waste Isolation Pilot Plant certainly offer us a number of lessons and some things that can be done to work together to alleviate legitimately some of the concerns about the transportation risks caused by moving some of these materials around the country.

Next slide, please? And, there's a lot of other experiences that we can draw on, some good and some bad. We have a situation right now in my part of the country, the Pacific Northwest, where issues related to transportation risk have become very large and the transportation risk issues are being used to try and stop a Department of Energy decision to bring low-level and mixed low-level waste to the Hanford site for disposal and storage.

You heard about my background. We deal mostly with Hanford issues. Anything virtually that goes to and from Hanford site in terms of waste shipments goes through, at least, 200 miles of Oregon. We've been involved very much in the transportation planning with the Western Governors Association group, with WIEB which I have co-chaired since 1999. My background in radio and television news, I think, has given me an added appreciation for the issues related to risk perception and why it is that the public is involved so much with some of these issues.

There's been a lot of research into risk perception. You've probably heard of some of the people that have been involved with some of this research; Vince Covello (phonetic), a researcher in my state of Oregon, Paul Slovick, Peter Sandman, many others who have done a lot of groundbreaking work. What they have found that I think is key to this discussion is there is a lot of factors that influence the public's perception of risk. And, in those findings, what they found is that statistical data are among the least important factors. I think that's very important to note. So, the numbers that you can throw out about risk levels, they really don't mean that much to the public.

What they did identify is what's called outrage factors and they found through their research that outrage factors very much can influence people's perception of risk.

And, outrage factors--and there's a lot of them--they include such things as issues of fairness; issues of choice; whether a risk is imposed on you or not; whether or not you know a lot about the issue, the topic; what the risk actually is. All of these things can influence very much the perception of risk.

Next slide. Now, let's look at these just a little bit more in some of these major factors. Is it fair? If people believe that the risk is not shared fairly, then they will perceive the risk to be higher. If they do not perceive a personal benefit to themselves, they will also perceive the risk to be higher. If the risk is imposed on them rather than a voluntary risk, one which they choose, again they will perceive the risk to be higher. If they feel there is no opportunity for local control or influence over what this issue is, again, the perception of the risk will be higher. If they're not familiar with it, if they don't fully understand it, again, these factors all weigh in helping to determine the perception of risk.

Two factors, let me point in talking about this list. One, this is not inclusive. There are many other risk factors. These are some of the primary ones. The second one is don't focus just on these last two issues. There's a lot of people that believe if we could just educate people about what the real risks are, then that would resolve a lot of

concerns. And that makes two assumption and ignores a couple things. One, it ignores other risk factors, and secondly, it presumes that people who receive the same information will come to the same conclusions. So, trying to educate our way out of the risk outrage factors just has not proven to be successful in any response.

Next slide, please? The research has shown that these risk perception factors are very powerful. Outrage very much more weighs in the public's perception than the actual hazard data. And, outraged people don't want to pay much attention to what you're telling them in terms of what the data may show.

Next slide. In addition, there are forces that can help amplify the outrage; the news media, for example, citizen activist groups. They don't create the outrage, but they can amplify it. And, finally, you need to legitimately address both. You need to recognize that these are very important realistic things that do result in how people behave and you need to respond and address both actors.

What I want to do is walk you through a short exercise and go through again these risk factors looking at two different activities. One has resulted in the deaths of 42,000 Americans last year and you don't hear much about people concerned about the risks. And, that's driving or riding in a car. And, the other is the transportation of

radioactive materials which we all know does have a high-risk perception, but as far as we know, has no resulted in any deaths; certainly, not last year.

So, let's go through this first for radioactive material transportation. Issue of fairness. Certainly, on the people who live along a transportation corridor or those who may drive on that corridor would incur the risk. So, it's not shared fairly. So, we'll put that in the "no" column.

I think most people would be hard-pressed to find an individual benefit that they personally could receive from this transport. Some people may look at it globally and say, yes, it's good for the environment or it generates my electricity. But, generally, people would not see an individual benefit from this.

We're going to find out very soon, in less than three weeks, whether or not this is a voluntary choice. There's an initiative in Washington State which will basically, if approved, stop wastes from coming to Hanford. The polls show that will probably pass. So, I think most people, if given the choice, would not choose to allow those transportation activities to occur.

Most people are not familiar, that familiar, with the issue of nuclear issues. They just really don't have that much familiarity with it. So, again, another "no".

In terms of well-understood, they recognize that there is debate even within the scientific community in terms of the effects and certainly of low doses of radiations. So, I think from the perspective of the public again, that would be a "no". In the terms of detectable, I don't know of too many people who own a radiation survey meter and keep one in their car or at their home.

So, if you look at a very basic chart, looking at some of these outrage factors, and you begin to apply what we know in terms of the influences of radioactive material transportation--and, I think, to me, it begins to really impress upon me why the perception of this activity is so high.

Let's look now at driving. And, I think you all pretty well know where this is going to go, but let's go through it anyway. If you drive, you ride in a car, you incur a risk. It seems pretty fair. You certainly benefit. You go to the store, you go to a restaurant, if you go to vacation, you definitely receive a benefit from driving. Other than maybe some mornings you really don't want to go to work, it really is a voluntary choice to drive. So, that, as well.

Growing up in America, I can't think of very many things that are more familiar than the automobile. I mean, we all grew up riding in a car, wanting a car, driving. So,

it's a very familiar activity to us. We understand the risks. We know what can happen if we're involved in an accident, although since all of us are probably above-average drivers, we would assume that this would not happen to us. So, we do understand the risk. And, finally, in terms of detectable, we certainly can see that Winnebago, you know, kind of coming over in our lane. So, the risks are detectable.

And, if you go to the next slide, you can see side-by-side again an activity on the right, driving, that killed an average of 116 American citizens last year per day versus an activity that certainly does have risks, but to our knowledge did not result in deaths. And, which activity draws certainly more public attention, more public outrage? I mean, most of us do not think, you know, at all, about the risks incurred by driving.

So, what does all this mean? What this means is if you can begin to address some of these outrage factors in a meaningful way, then you can begin to reduce the level of outrage. If you look though at the topic of transportation or radioactive materials and you remember some of those categories, some of those, there's really not a lot that can be done. It's not going to be a voluntary choice to the public. I mean, the decision has been made at the moment to have a Yucca Mountain, to transport radioactive materials.

So, that decision has kind of already made and is out of the equation. Certainly, you can improve on some familiarity issues and you can provide that. There are opportunities to provide some oversight and in those respects you can make a little bit of progress, as well.

Next slide? The research also found it is very important to focus on--in terms of those who communicate the risk of this activity, whether it's the Federal Government or the states or the utility, whoever it is--is the public really wants to hear what you are doing to reduce the level of risk. They're not interested in hearing how small you think the risk is. They want to know what you're doing to make that risk even smaller. So, it's very important in terms of communicating the things that you actually do to make those risks smaller.

Next slide. What they also found and this plays into this is there are credible sources of information. So, if you're conveying information, but your credibility is lacking, you can somehow partner with these people perhaps to help with your communication of the risk. Fire chiefs, they found, are the most credible in dealing with risk. Unless your fire chief has been in the news for the last few weeks on embezzlement charges or something like that, your fire chief is about as good as you can get. Other first responders including police have a lot of credibility, local

health professionals, local university professors. These people generally have a lot of credibility. A notch down as moderate is the news media, I think, is continuing to slide, unfortunately. My former profession has got some credibility issues, but it still has a moderate level of credibility. Environmental groups are known to have an agenda and a position. So, people do take into account that agenda, but do give some credibility to what the environmental groups are saying and the local and state officials, as well, in that moderate level.

In terms of least credibility, industry because everyone knows they're just in it for the profits is what the perception is and the Federal Government. So, what does all this mean? Let me give you an example. If I go to a meeting in rural northeast Oregon and I say, look, these shipments are about to happen. We did all kinds of training. The risks are very small. Don't worry, we've got it handled. You know, a couple of people in the audience may believe me. A couple of them probably won't. They won't be too happy with me as a state official, you know, having that moderate level of credibility. They don't know me otherwise. But, if I actually do that training, if I provide the training to the fire department, the hospitals, I give them equipment, teach them how to use it, provide them shipment information, notifications, and I get that fire chief and maybe the

emergency room doctor to come on that stage with me and they say, yes, we're prepared, they've done what they said they would do. We would rather this stuff maybe not transport through our area, but we're aware of the risks. We believe we're prepared. Think how different, think how different that message will be received by the public. So, it's important to try and find the credibility in terms of who can convey that message. And, again, it's got to be a legitimate message. You're not going to get the fire chief--most fire chiefs I know are not going to get up there and say they're ready if they're not. So, it shows with actually meaningfully making some things happen to address some of these risk factors.

Let me talk about the WIPP experience now. Why don't you go to the next slide, as well. I think by any measure of success if you look at the transportation of transuranic waste to the Waste Isolation Pilot Plant, you would have to consider it a success. The past 3,000 shipments in five and a half years of operations, there have been a few accidents which you would expect. They've been minor. There have been some operational errors which again you would expect, but for the most part, the program has done what it was designed to do. It has resulted in the safe transportation of this material from the generator sites to WIPP.

Certainly, some people are still not happy that these shipments occur, but there aren't demonstrations, there aren't protests, there's not litigation. For the most part, it's out of the public consciousness. It's a program that's been doing well. And, one of the primary reasons this program is successful is because of the partnership between the states and the Federal Government in developing this transportation program because what it resulted in is the states were willing to stand up with DOE and say this is a good program and we're willing to work with our local officials to get them to endorse it, as well. That doesn't mean we're advocates for the program. That doesn't mean the local fire chief says, yeah, bring them on through, we don't care. It just means we understand these shipments are going to happen and we're going to do--we've done what we need to do to prepare for those.

Next slide. The WIPP transportation program actually has its roots in rural northeast Oregon which I'm sure very few of you are aware of. In 1988, the U.S. Department of Energy thought that, you know, the WIPP facility was physically built, they thought they were going to be able to get through the regulatory and the licensing and legal issues fairly quickly. And, basically, they said, hey, states, we're going to start shipping pretty darn soon, even though it turned out to be 11 years later.

What we did, my agency--and this was actually a year before I began working there so I can't take credit for what they did; I'll just share in the glory of my co-workers--is we went out along the routes and we met with emergency responders, we met with the news media, we met with the public, we met with elected officials, about 400 people total in these four route communities of Ontario, LeGrand, Baker, and Pendleton.

Next slide. The message we gave folks was this. We said, look, these shipments are going to start pretty soon, at least, we thought they were. We can't stop them. We have really no legal way to stop these shipments from happening. And, in fact, we thought it was a pretty good idea that shipments did occur because we thought--you know, we wanted to see cleanup at Hanford move forward. We thought it was important to get these wastes out of Hanford, get them down to the repository in New Mexico. So, we said, folks on the route, if you can accept that given that these shipments are going to happen, what types of things can be done in terms of operational considerations, in terms of requirements for carriers and shippers, in terms of inspection standards? What are the types of things that can be done to get this route ready to give you some confidence that the risk has been meaningfully addressed? And, they gave us a lot of great comments.

Next slide. This is a shot along the route from an Oregon Department of Transportation camera, if you look at the bottom, in April. In most places, you don't think of snow in April, but the weather along this route can be very unpredictable and this, as we expected, was an issue that was raised very much and very firm from the public. We're really concerned about winter weather shipments because DOE's plans were to ship year-round. And, they had other suggestions and recommendations, as well. And, there were also some major findings.

Go to the next slide in that. They basically said that we understand why you want to do this. Support for cleanup was fairly broad even though it would result in the transportation of radioactive materials through their cities. So, there was a perceived benefit for these folks which was good. They thought that we were taking both the state and Federal Government by coming out to talk with them, we're taking reasonable precautions, although there was still some skepticism about whether or not what we were hearing from them would actually result in a meaningful transportation plan. And, there was concern about emergency response capabilities lacking in that part of the state at that time.

So, what we did is we--the folks in my agency actually without really even understanding outrage factors and risk perception, they really did develop a meaningful

response to some of these issues. They took the transport recommendations, developed a report, went back to the community, kind of worked through with them, finalized it, took it to the other western states through the Western Governors Association, and we began the process of talking among the states about this. We also began discussions with the Department of Energy. And, for the Department of Energy, this was a tough step for them at that point institutionally for them to make concessions in terms of their operations of how they transport waste. I mean, up until that point, they basically, you know, done what they did and they didn't ask the states, they didn't ask for input. But, to their credit, they did recognize this was a little different. This was a large, very large, transportation campaign. At that point, I believe, the numbers they were projecting and they've since come way down, but I believe those numbers were about 33,000 shipments over the life of the project, 16,000 alone from Hanford. So, that was nearly half of those shipments in those early projections.

Eventually, virtually all of the recommendations that my citizens in Oregon made found a way into this transportation plan and it became a lesson for us, I think, in terms of cooperatively actually responding to citizen concerns in developing a transportation program.

Next slide. We involved the community. We

involved them early. And, again, we couldn't address that over-arching question of do you want these to happen because from our perspective and the perspective we conveyed, this was going to happen. Shipments were going to be made. We did recognize that we would have a better program with their input and we were also clear that although we would advocate for the recommendations they were giving us, there was no guarantee that this is what would be instituted eventually. Most of it eventually was which was great.

So, I think, in summary, in terms of the WIPP program, I think it's been a tremendous success. I think there's some lessons for us and I think DOE is very much aware of those lessons of the cooperative planning.

Let me talk now a little bit about what's going on in my part of the country right now. Go ahead to the next slide. In Oregon and certainly in Washington State right now, we are seeing transportation risks greatly exaggerated in an attempt to stop the U.S. Department of Energy decision to bring primarily low-level and mixed low-level waste to Hanford for disposal in significant quantities. And, it has really become a major issue. Let me give you a little bit of background first on this.

The next slide. A few years ago, the U.S. Department of Energy through a programmatic Environmental Impact Statement declared Hanford and the Nevada Test Site as

their national disposal sites for the majority of low-level and mixed low-level waste from throughout the Department of Energy's environmental management cleanup project. So, again, potentially huge amounts of waste coming to Hanford, coming to Nevada for disposal. The process bothered a lot of people. What they did nationally, they looked at this and they basically said we select Hanford, we select Nevada, and we'll do site-specific analysis later to validate that choice. When they did the site-specific analysis at Hanford and I assume at Nevada, as well, is they didn't question the decision to bring the waste to Hanford. They didn't look at other alternatives. They just said, you're right, this is where we're bringing it and they began to look at the impacts of bringing that waste in without looking at the full impacts of all the wastes they'd been disposing at Hanford for the last 60 years. So, the process angered people.

Next slide. What exacerbated the situation was the decision by the U.S. Department of Energy to bring remote handled transuranic waste to Hanford from a couple of small sites. Their reasoning behind doing this was that they have a couple of small sites--they have quite a few small sites around the country with very small amounts of transuranic waste--they cannot complete cleanup of these sites until they get that waste out of there. They cannot ship the waste directly from those small sites to WIPP. In some cases, some

of the waste cannot yet to go to WIPP because there is not the proper licensing and approval, for example, for remote handled waste. So, what the Department of Energy wanted to do is move it off-site, in this case to Hanford, so they can move forward with cleaning up those small sites.

The perception at Hanford again is we're getting dumped on. You're sending us waste that may not have a path out of here. It resulted in litigation by the State of Washington. It resulted in litigation by some activist groups. And, it did result in a temporary injunction to stop the U.S. Department of Energy from doing this. That litigation has since been expanded because of some other things to include now low-level and mixed low-level waste.

Next slide. It also generated an initiative petition in Washington State and this is what the petition looks like. Basically, what it would do is it would not allow Federal Government to bring low-level and mixed low-level waste, transuranic waste, to Hanford until the environmental mess at Hanford is cleaned up which is going to be decades away. Again, as I mentioned earlier, polls indicate that this likely will pass. And, while the U.S. Department of Energy is most certainly likely to challenge the legality of this in Court, it at the same time is just going to really exacerbate the situation and really cause some problems in terms of the national management of low-

level waste and mixed low-level waste for the Department of Energy complex.

What's interesting, as well, is some of the arguments that we've been hearing from some of the--it's Initiative 297. This is one of the news releases. Anything that DOE has produced through this whole process was fair game for them to use. And, you folks are all aware of how Environmental Impact Statements are done is that you bound what the risk might be. You look at a, you know, usually, an unbelievably high level of whatever it is--in this case, quantity--and that is what the activists are stuck with. Even though in subsequent--both the Final Environmental Impact Statement and a Record of Decision which drastically lowered the amount of waste, this is the number that has been stuck with in all the communication. And, of course, they're treating it all the same. Low-level and mixed low-level waste, a lot of it is fairly benign, some of it is pretty radioactive, but in the communications that we hear, it's all 70,000 dirty bombs traveling through your neighborhoods on the way to Hanford. And, that certainly is sparking some interest among the voters in Washington State.

Next slide. And, just another example, as well, there was concerns expressed that these are unescorted shipments, concerns expressed in terms of again the analysis, whether the Department of Energy looks at radiation exposure

in non-accident situations, and again high bounds, high loads, long time stuck in traffic, and they came up with 10 fatalities. And so, again, one of the messages--and we know those numbers aren't really real. That's not going to happen, but the message we get in the communication from these is that 10 people will die if you allow this to happen whether or not there's an accident or not. And, of course, there will be accidents. Why don't you go ahead and turn that off?

The scare tactics were so successful that the City Council in Portland, Oregon, a few months ago passed a resolution asking President Bush to order the Department of Energy to revisit this decision using again the same arguments I just explained to you; 70,000 dirty bombs, 10 people will die, at least. I've got to tell you I am embarrassed that the largest city in my state passed a resolution based on information like that. And, I'm further embarrassed that after two conversations I had with City Council staff before the vote, I was not able to sway the direction that they were heading. It was too late. And, I give this example to you because, I think, it's important to realize that even--you know, we're looking at Yucca Mountain, we're looking at some other things that seem large--something that seems to be a whole lot less risky, yet draws that level of outrage that quickly. And, from a political standpoint,

it is such an easy target for politicians to say, you know, I don't see any great benefit to me. I'm going to say this is horrible, dangerous, risky, don't do it. And, the politicians in Portland, Oregon, did that in this case.

So, let me wrap it up a bit. Let me bring this together as best I can. I think we all expect there will be some level of public protest against the Yucca Mountain shipments. How big that is remains to be seen. If DOE ignores the risk perception aspect of it, if they ignore that and just go blindly on their way and say, you know, look at the risk numbers, it's not that big a deal, that will greatly increase the level of outrage, concern, and protest. Even if DOE does everything right because again, as I mentioned, there are some limits as to how many of these outrage factors can be addressed, it's still going to be a concern. This is too big an issue, there's too much concern built up over this issue, and they won't be successful in completely eliminating all the concerns.

From the lessons we've had, I think, with WIPP, one that I'd like to say, I think, it's--I'm sorry it's going to sound somewhat self-serving and I didn't intend when I was asked to do this to come here with this message, but in going through this and looking at it, I think, it's a pretty obvious message. And, that is for DOE to get at least some assistance in dealing with this and some cover in dealing

with the public is they have to work very cooperatively with the states just as they did with the WIPP program. And, we've had discussions and we've been talking for a lot of years and we're meeting with Gary and Judith and they're doing some things. They need to make sure that when shipments begin that the states are on their side, that the states are again willing to stand up and say look what we've done, to work with their fire departments and their other emergency responders and get them, as well, to say look what we've done to make this safe. I don't think we're there quite yet. There's a lot of work yet to be done and a lot of discussions yet to be made. Certainly, with the issue of rail, we're definitely not there yet.

So, thank you for your time.

ABKOWITZ: Ken, thank you. I'm not outraged by the fact that you actually brought us back on schedule. We're going to start with John Garrick followed by Ron Latanision.

GARRICK: Garrick, Board. I just wanted to get your perspective on one of the mysteries that you manifested here with your 70,000 dirty bombs line. Why is it in your opinion that upside, scientifically based numbers do not impress the public while downside, non-scientifically based and often irresponsible numbers do? You started your presentation that they don't like numbers. And, of course, the whole scientific method is based on numbers. The role of the

scientists is to reduce observations and disjointed information to measurable quantities and parameters. And, it sounds like what you're saying is that the scientific method can't work here. I point to the 70,000 slide as a specific example.

NILES: Right. I think--and that's a very good question. I would hazard a guess that because in this case with the 70,000, the number validates the concerns. It makes it seem so outrageous because they've attached not to 70,000, but at 70,000 dirty bombs.

GARRICK: Well, that's extremely unscientific and--

NILES: Absolutely.

GARRICK: --irrational.

NILES: Absolutely, it is.

GARRICK: Are we getting ourselves into a position where rational thought and rational processes and means of getting to the truth won't work?

NILES: I think we've always been there to some extent. I mean, certainly, with issues related to nuclear, there are all these other factors that have to be recognized and have to be dealt with in some manner. You're not going to--you're not going to alleviate all the perception of risk. You're not going to alleviate all the concern that exists there. There are some things you can do, some things in terms of what I mentioned of working in terms of credibility and being

able to say look at the things we've done to reduce the risk even further. And, that's a message that again the risk perception studies and research that they've done, that message does--

GARRICK: But, that has an aspect of irresponsibility to it.

NILES: Yes, it does.

GARRICK: Why should I take the people's resources to try to make something smaller that's irrelevant to human safety?

NILES: Because, otherwise, it probably won't happen. I mean, that is the political reality. We have the same issues, for example, at Hanford in terms of level of cleanup. How clean is clean? I mean, it's a huge debate right now at Hanford and other environmental cleanup sites is do you, you know--

GARRICK: Well, that's again because you're asking the wrong question. It's not a matter of how clean is clean. It's a matter of what are the alternatives.

NILES: Right.

GARRICK: And, what rational decision process picks out the best alternative.

NILES: Yeah.

GARRICK: And, that's also one of the reasons why we get ourselves into these dilemmas. We keep asking the wrong

question. This question of how safe is safe is an illogical and irrelevant question. The question is what are the alternatives available to us for dealing with this problem and which one based on the preferences of the public and whomever in some systematic process results in the best outcome for us all? That should be the question.

NILES: Sometimes, it's turned around at Hanford to be how dirty is acceptable?

GARRICK: Well, that--

NILES: Yeah, I have--

GARRICK: It's a lazy approach to the problem.

NILES: I agree. I agree, but it's the reality of the world we live in.

ABKOWITZ: Ron?

LATANISION: Latanision, Board. I'm intrigued by your media experience and the implications that they may have in terms of not only issues such as this one in terms of waste transport, but other issues of science or technology policy in which the public outrage sometimes works in ways that are not totally objective or reasonable. You made the comment that the media can amplify outrage and, obviously, that's very apparent. The media is also, obviously, capable of shaping public opinion. And, in some of the nations of the world, the media is controlled by the state, by the government, and therefore the messages which shape public

opinion are controlled, as well. In democracies, how can we envision? Do you have any thoughts on how the media can actually serve in a more objective or de-mystifying capacity on a whole range of issues, not only questions associated with that which we're dealing with here today, but in general? I mean, there are a lot of public issues that need to be dealt with and the public is not totally objective or aware in many cases. How do you de-mystify these issues?

NILES: I think it's getting harder and harder to do that because of the proliferation of media sources and media outlets and internet and chat rooms and log-in sites and everything else. What has traditionally been the best way to do that, at least, to some extent is individual relationships and, unfortunately, that's what it comes down to; individual relationships between, say, a government entity and individual reporters. A development of trust that--for example, I worked pretty closely with a reporter who covers issues with the Oregonian, covers issues related to Hanford cleanup. And, through a couple of years of dealing with him, I think we have developed a relationship where he understands that I can give a rational response to an issue. So, if he sees something come over the Associated Press wire that was originated by a reporter who heard something just from an activist that might be an exaggeration, rather than just run with it, he might call me and find out my perspective on it

and it might slow them down or it might, at least, give that different perspective. We've been able to see--certainly, at the local community level, you can do that. And, certainly, in some cases with some national writers or reporters, you can see that, as well. But, it's getting harder and harder to do that because, as I said, the media is growing so tremendously. And, beyond developing those relationships and working in that manner, I really don't know what we can do at a larger scale.

LATANISION: Thank you.

ABKOWITZ: Andy?

KADAK: Andy Kadak, Board. I was intrigued by your inevitability arguments in the sense that once it was determined that WIPP was going to be accepting, you know, transuranic wastes and the inevitability of that decision, people began to think, well, how can I make it better? And, tell me if this is correct. Is it that inevitability that got people to the table to talk or is it, you know, in some cases where people think if it's not inevitable, I can still stop it and, therefore, I will not cooperate to establish what might be the best route?

NILES: I guess I don't want to mischaracterize it as an overall acceptance. When my agency went out, the acceptability was from our agency perspective these are going to happen and that was what we tried to convey to the public.

And, some of the public certainly still was not willing to accept that, but there was an opportunity, they thought, to shape what was going to happen. I think it's going to vary issue by issue and situation by situation. Certainly, in some cases, people will accept that a decision has been made and that's what's going to happen. In other times, that's going to amplify their outrage because they had no say over it. So, I'm not sure there is a--you know, this is--unlike the science you folks are more familiar with where you can come up with in many cases an equivocable answer, it's a whole lot different in this realm.

ABKOWITZ: Abkowitz, Board. I have one final question, Ken. Is there any possibility that the pendulum will swing back in the other direction somewhere down the road? I mean, it seems to me that there will be a point in time when people will sort of say, well, you know, we've tied everything up in knots, we have a total conundrum here, we're going to have to rethink the way we think about things. Is that anywhere on the horizon?

NILES: I would sure hope so, but I don't think it's going to be close.

ABKOWITZ: Okay, thanks. Harold, you have the last word.

ARNOLD: Arnold, Board. You have some experience other than Hanford at the Trojan Site and you have done some

shipping out of there and that would also be involved in the Yucca case and it's near Portland and all that. How do you predict what's going to happen?

NILES: I think, unlike a lot of states, we're going to have an easier job of it because Trojan is shut down and they have a--they can see the limits of what the shipping campaign will be. There's no more--I mean, there's 31--I believe, 31 is the number of canisters sitting out there that they have--they've moved all their fuel to dry storage. Routing will be an interesting issue for us because whether or not--it's going to be an interesting issue for us in Washington whether it goes across the river into Washington State to bypass the Portland metropolitan area or whether it comes through the Portland metropolitan area will certainly be a heated issue. And, I think those routing questions will be very contentious for us. We have had a history of some shipments out of there. We've seen the steam generators and the reactor vessel itself move by river. It will also depend, as well, on when Trojan ships. If you follow the cue, Trojan won't ship for the first six or seven years and I think all of us believe, you know, once those first shipments are underway, the level of concern will drop. I mean, it did with WIPP. It did tremendously. Each new route will certainly have some issues, certainly some concerns, but the first route, the first shipments are going to be the biggest

ones. And, that's where, you know, I would expect there will be a tremendous amount of concern.

ARNOLD: Thank you.

ABKOWITZ: Okay. Ken, thank you very much.

We're now entering our public comment period. There are seven people signed up to speak, and as in the case of yesterday, I'd like to have the speakers address the Board and the audience from the front podium and I'll also invoke the no more than five minute rule, as well.

We'll start off today with Bob Halstead and in the on deck circle is Earl Easton.

HALSTEAD: Thank you, Mr. Chairman, for the opportunity to speak to you again. I'd like to address three issues; routing, systems planning for hardware design, and the issue of trust.

Issue #1, somehow yesterday we managed to make the Western Governors Association and WIEB routing process confusing and complex. I'm not sure why we weren't able to make it simple. It seems to us it simply involves three steps.

The first step is for DOE to put forward base case or straw men routes for each potential mode for each shipping site to Yucca Mountain. That means the 77 sites, 72 commercial and five DOE. And, from Nevada's standpoint, the representative routes that are in the Final EIS would be a

fine starting point for that, although many of you may be surprised to find that they're hidden at the back of Appendix J of the EIS and not put forward in an easily accessible way, but they're actually there and that would be a good starting point.

Secondly, the states and DOE through Western Interstate Energy Board with input from tribes and local governments would evaluate those routes in comparison to alternatives identified by states, tribes, local governments, and process using the multi-attribute utility process as Dr. Garrick suggested to rank order some of the criteria, using certainly Dr. Abkowitz's all-hazards approach, and frankly, we have the GIS tools to do this node link analysis now very rapidly. And, we would also look at minimizing impacts on urban areas with this proviso, it's going to be very difficult to limit impacts on urban areas, particularly for rail. And, we may have to think about things like convoy requirements, time of day restrictions, speed limits, special escort requirements. Special administrative controls may be necessary to make certain urban routes acceptable. And then, based on that analysis, we would hope that the Western Interstate Energy Board could specify preferred routes from a regional perspective.

The third step would be for the Department of Energy to make a commitment and follow through on that

commitment to specify these routes in its motor carrier contracts and its rail carrier contracts, understanding that some provisions for temporary and emergency deviations would have to be addressed. Not a perfect process, it reflects our two decades of work in this field.

The second issue, I'll try to be brief, but this is a very important point. Dr. Arnold raised this point in his questions to Mr. Parkyn and this came up in Earl Easton's presentation yesterday. The bottom line is we are seeing the absence of a systems planning approach to hardware design, for storage, transport, and disposal. In 1990, the State of Nevada approached a standardized dual-purpose cask, three sizes of dual-purpose cask using a common design approach. In 1996, the State of Nevada endorsed DOE's Multiple Purpose Canister approach. It seems to have fallen by the wayside now, as Earl said, because the utilities are focused on at-reactor storage and, frankly, are interested in maximizing profit opportunities for particular company who in some cases have organized subsidiaries who provide the system designs for themselves and they don't want them to be standardized.

That is causing a major problem for Yucca Mountain which we talked about yesterday, but the issue we want to talk about today is an issue that emerged yesterday when Gary Lanthram and I were both being interviewed at the same time by a reporter from the Deseret News and it occurred to me

this very simple thing had not been laid on the table. And, that is that there is no hardware design exit strategy for shipments from the PFS facility to Yucca Mountain. Now, that has profound implications. It means that unless all those standard contracts are renegotiated, that spent fuel could end up having to be shipped back from PFS to the originating reactors to be repackaged for shipment to Yucca Mountain. It's further complicated, of course, by the absence of useful waste acceptance criteria and final waste emplacement package designs because of the uncertainties about thermal loading at Yucca Mountain.

I believe that this is an area that the Board should highlight. And, in my personal opinion, it's probably the single most important thing that the Board could redirect DOE's program regarding and that is that we need to have an integrated systems approach to designing this hardware. We can still do this now. Of the 100,000 to 120,000 metric tons of projected spent fuel from the existing reactors, assuming 20 year license extensions, less than 20 percent of that spent fuel has been committed to a specific dry storage design. Yes, it will be expensive to switch for the 20, but for the 80 percent that's yet to be committed or generated, we can standardize this system. It's not too late to do this. And, the longer we wait, of course, the more difficult and more expensive it becomes.

Finally--and, I'm sorry, I'm going over, Mr. Chairman--let me just briefly address a third issue and that is the absence of trust, generally speaking, in government organizations, of my own agency included. But, specifically, the lack of trust in the Atomic Energy Commission and the Department of Energy based on the weapons testing program in Nevada. And, this, combined with the lessons I learned working on the Crystalline Repository Project when I worked for the state of Wisconsin between 1978 and 1988, there is a profound problem with the public perception of this agency and its history. I'm not saying it's fair. I'm just saying it's a real problem. In 1985, a major program milestone was made in the so-called Waste Commingling Report where the decision was made to give DOE full jurisdiction over both the civilian waste and the defense waste. I think that's an issue that the Board will have to be sensitive to. That, in addition to other institutional issues, there is a profound distrust of the Department of Energy, whether it's deserved or not in the State of Nevada and in many other states.

Thank you again for having this meeting in a western location and thank you again for allowing me to speak.

ABKOWITZ: Thank you, Bob.

Our next commenter will be Earl Easton and he will be followed by Marjorie Bullcreek.

EASTON: Thank you. Earl Easton, U.S. Nuclear Regulatory Commission. I'd like to make three comments; two as a representative of the NRC and one a personal observation intended to evoke thought.

First, I want to make two comments to clarify the NRC's position on full-scale cask testing. The Commission is committed to do a single demonstration test for a full-scale rail cask called the Package Performance Study and the intended purpose of this test is to demonstrate the performance of the cask in a severe rail accident. This is not the same test that will be used to certify the cask. This is a demonstration test to show how a certified cask would perform in a severe accident.

Second point, the NRC firmly believes that casks can be demonstrated to meet the regulations which we think are adequate to protect against several accidents based on computer modeling, scale model test, all the physical tests done to date, the full-scale testing of cask components such as impact limiters, etcetera, etcetera. We believe that you do not have to test full-scale models of each and every cask design.

Now, as a personal observation, I suspect when you really look at the issue of full-scale cask testing, this will not prove to be the silver bullet in all cases that people might think it is. In fact, I believe based on my

personal experience you can have more robust cask designs based on computer analysis than on full-scale testing.

Let me give you the example. The last speaker put up a picture that showed the TRUPAC-2 package for transuranic waste. I had the great honor of being the project manager when that was approved in 1989. We told the Department of Energy based on their computer testing that we could not approve that cask because the areas around the surface where the seal is is very close to the point at which it would deform and you're counting on the seal to take up the slack. We could not approve that based on computer modeling. DOE went out and tested three full-scale replicas. One of them, they had a problem in the seal area and they fixed it. The point is all three tests passed the leak test, passed all the regulatory requirements, and was certified.

I, as my own observation, am convinced if we had been called upon to approve that based on computer modeling and meeting all the code requirements and margin in the code requirements, it would have had even a more robust package than what the final design turned out to be. The only point is I believe both cases are safe. It is not a given that packages based solely on full-scale physical testing always lead to the most robust package. Again, this is a personal observation based on my experience on the TRUPAC-2 package.

Thanks.

ABKOWITZ: Earl, one second, please. Dr. Kadak would like to follow up.

KADAK: Yes, Kadak, Board. We've heard a number of occasions that the test to failure is one of the expectations of several people that we've heard testify in the last couple of days. What would you say about the need for test to failure and what are the arguments pro and con for that?

EASTON: Okay. I thought I was just making comments, but okay. A very good answer. The Commission is on record as not in support of testing to cask failure. Number one, cask failure is not a very defined term. What do we mean by it? A breach in the cask, an increase in the leak rate, loss of shielding, what is indeed cask failure? And so, we've had a hard time really trying to define what people mean by cask failure. Different people think it's a different thing.

If you think it's a breach of the cask, a rupture of the cask, we do not based on all the evidence we see believe there is a credible accident out there that could lead to such forces that could actually breach a cask. So, we think it's an unrealistic test and we don't see there is much to gain from it.

Did that answer it?

KADAK: And, why do the proponents of this feel it's an important thing to do?

EASTON: Well, I--you're asking me again to put myself

into the issues. But, I think, the last speaker had it pretty well. I mean, there's a fear of radioactive material and if it gets out and--you know, some people would like to go to all lengths to avoid that. I can only guess that we've not done a very good communication job between what we think would be the massive forces that you can't really get in a credible accident and cask failure. I believe there are probably a lot of the public that think there are credible accidents that could lead to failure. And so, our position is to stage a credible accident and show how far away from failure you really are.

Did that help?

KADAK: Thank you.

EASTON: Thank you again for the opportunity.

ABKOWITZ: Thank you, Earl.

Marjorie is our next speaker and she will be followed by Pete Litster.

BULLCREEK: Hello. My name is Margenie Bullcreek and I'm a Goshute Shoshone from the (inaudible) Goshutes. Marjorie is the name of my granddaughter and my mother's name and so it's--I'm glad you called me Marjorie.

ABKOWITZ: I'm sorry, I'm not real good with people's penmanship.

BULLCREEK: That's okay. I'm standing here before you not as an activist. I'm standing before you as a concerned

Native American. It doesn't matter where our reservations are or where you want to put this poison, this high-level nuclear waste, throughout the country because your transportation is going to go through the reservations. My main concern is that have you reached out to these people that lives on the reservations that you're going to be crossing? Have you talked to the indigenous people about your proposal for this transportation that's going to go through our reservation?

I've heard from the beginning how the MRS, Monitored Retrievable Storage, was a project for the DOE to come to our reservation because it was our--at that time, our council leaders that went and made a study on this and they came back and insist up to today how safe this fuel storage is going to be, this cask is. At that time, I disagreed and I opposed it. And, I think that this is one way that the DOE--I'm going to say DOE because when PFS, Private Fuel Storage, had a contract with the utility company, it became Private Fuel Storage. But, at that time before the project was thrown out, it was a DOE project and now, all of a sudden, when it--the negotiator's office closed down, it became a private facility project.

So, I'm just wondering is PFS opening the door for DOE to make it a possibility for the transportation to proceed to Yucca Mountain? Is it clearing some of the

regulations that's supposed to be imposed to transfer this material to Yucca Mountain? Are we being designed as a--how can you say--is Garvellie (phonetic) Reservation being designed to be a target to store this poison on our reservation? Temporarily, they said, but it's no temporary. It's going to be permanent.

The reason why I say that is because you talk about transportation and all this being safe, that there won't be any terrorists, that there won't be any type of accident that is accident prone, but we always forget on how there are manmade accidents. I've been told that we are creating our own fears. I don't think it's creating our own fears. I think there is a reality. When that happened whereas an emergency crew, especially on a reservation, the only thing we have there is a little fire hydrant.

And, my concern is that PFS seems in a lot of minds that this is a project that's going to happen. It's a project that has been developed by deceit, by lies, by support from my people. (Inaudible) says 80 percent of my people are for this. They're not. We didn't have the chance to vote on this. So that you can talk about your transportation, you are--where are you at now on this level? Are you at the end of the licensing period? But, we never had our chance to say anything. The people haven't really had the chance to vote on this. Most of the people are not

for this. We do not feel that we should be the nation's answer to your long-term interim that's called Yucca Mountain. We do not wish to be part of this because I'm a Native American and we believe in preserving our reservation, the only reservation that the government has left us. We're not designed to develop more than half of your poisonous wastes on our small 17,000 acre reservation. We have a right to be able to come before you and be heard. Just because I'm the only one standing here before you, I'm just like a messenger.

I ask that we be heard on these transportation routes. I ask the NRC that we be heard on the status of the licensing, to be heard because this construction that's supposed to happen is already in motion, but it's not and I'm glad it isn't. But, that's what I'm saying about this transportation route, we need to be heard by you as Native Americans that you're going to be passing through with this waste. We need to have a voice. What role does the DOE have in this Private Fuel Storage licensing? How did the two become in this--enter this marriage state of mind? DOE, I felt from the beginning, had no part in this private facility. Is this--I've always felt from the beginning of my understanding the government and tribal relationship about how far are you ahead of our tribes because it was the intention of the government to take over our tribe, to take

over our reservations. There's no other place to store this nuclear waste but on our reservations. We have sovereignty, but our sovereignty has not been really recognized, has not been really dealt with respectively because DOE, the Federal Government, have your Federal transportation. And so, if you're going to go through our reservation, you're going to go through it. But then, you know, I ask that we have the respect to be heard, as well, in your discussions because I really feel that the deal isn't really done until you've dealt with this and this is my reservation. This is my reservation that you want to bombard us with. Our tribal leaders are saying that more than three-fourths of our tribe are for this, but you know what, from the beginning, our country was developed, that has to do with our Native Americans by lies and deceit, and that's just what's going on today. You need to come and talk to the members, talk to other tribes throughout the country that you're going to come through with your waste. Sit down with us, not with our tribal leaders, but with the grass roots.

ABKOWITZ: Okay.

BULLCREEK: Thank you.

ABKOWITZ: Margenie, thank you very much.

Our next commenter is Pete Litster and he will be followed by Elizabeth Payne.

LITSTER: I want to thank the Technical Review Board

again for coming out to Utah and holding these meetings here, giving us an opportunity to address some of these concerns. I realize it's not necessarily the position of the Technical Review Board to deal with political considerations like democratic policy making and stuff like that. You're here to review the technical aspects of these proposals or the projects.

But, I think there's one thing that Margenie said that's very important and that is that through the process--well, for example, there are a lot of Goshutes. The Goshute Tribal Council is all adult members who had no idea that the NRC has been holding these meetings over the last two months with representatives of their leadership or anything like that. I mean, it's very important that we do understand, particularly given the presentation by Mr. Niles here. The public's perception of risk is kind of cultivated when there's this lack of communication and I think it's very important that--and I do want to thank Mr. Niles for bringing that sense of public risk perception into the technical discussions because these things do need to be considered as technical aspects of these projects.

First of all, one issue is the Private Fuel Storage is saying that it will be providing training and support to the regions and states. There was a concern that was raised yesterday in the discussion of the Section 180c about the

fact that the funding and the time line and everything else for providing emergency response keeps continuing to be pushed back, pushed back and I'm wondering if these constraints also apply to Private Fuel Storage or if similar constraints of similar delays continue to apply to Private Fuel Storage.

Second, discussions with Utah state officials that I've had have left me with the impression that member utilities have walked away from PFS and they continue to walk away from PFS. What this causes me to ask is what impact does withdrawal of member utilities have on the fiscal viability of PFS and, in fact, on its ability to guarantee that its commitments, in terms of providing the funding and the training and all of these other things, are going to happen according to schedule, if at all. Or, you know, what impact does that have on PFS's ability to perform up to the expectations it's guaranteeing.

Next issue is there was a concern mentioned that a launched wheel in the event of an accident could compromise a cask or canister integrity and this was the reason why they reinforced--or why PFS is taking responsibility for its own trains and things like this. If they're concerned about a launched wheel compromising a cask or a canister requiring these modifications, then what about a more hardened or deliberately targeted missile? I mean, maybe I'm sort of

behind on the technology here, but it seems if there's that concern, then there are broader concerns that could be discussed.

Next issue, PFS says that this is not a permanent site, that they're not interested in permanent storage. My question then is what is their capacity for permanent storage if, for whatever reason, a permanent repository is not found, Yucca Mountain is not approved, and PFS ends up being stuck with it? Do they have the capacity for permanent storage and is there an exit strategy?

Next, as an economic opportunity for Goshutes, the site's revenue generated through leasing, what other real economic opportunities will come from this in terms of jobs, specialized trainings for Goshutes, other environmentally sensitive projects that promise these types of economic opportunities, jobs, etcetera, to host communities only to have it discovered later that jobs would not come from the host communities, but workers would end up having to be imported, specialists and things like that. It's maybe not so much a question for the Review Board, but it is a question for PFS.

Next, if the canisters are found to be compromised on route, what happens to them? I mean, I've heard stories that they'll be sent back to their source location. I don't know. Are they going to be redirected? What happens if a

canister is compromised on route and what impact does that have on communities affected by that?

The last thing is, as I understand--this is mostly through an environmental science class I took at the University of Utah--the US, Interstate, and other highway systems were established to dissipate traffic due to lessons learned regarding vulnerabilities of rail to sabotage, attack, etcetera, after our experience with modern warfare, specifically World War II. We saw what happened to the European rail lines and how vulnerable that type of transportation is. So, we created the highway system to dissipate traffic so we weren't concentrating risk. In this context, how do we interpret or guarantee the advantages of fail versus truck transportation from a security standpoint.

And, that's it for me. Thanks.

ABKOWITZ: Thank you, Pete.

Our next commenter is Elizabeth Payne and she will be followed by Irene Navis.

PAYNE: Hi, I'm Elizabeth Payne, (inaudible) manager for the Shundahai Network. Thanks for coming out and I appreciate your listening to my concerns. A few of them have already been covered, but I'm going to ask them and state them anyway just so you know that more than one or two people feel this way.

The first one that I have is, according to the

facts presented in the western states and routing presentation yesterday, if one of over 10,000 casks being shipped over rail or one of over 53,000 casks being shipped on the highways, it may seem like relatively low odds having an accident, but even one major accident is too many. With the high interest of terrorist attacks it seems like it is highly possible for an accident to occur without even counting road or weather conditions which are not entirely predictable.

It seems unfair to the American population to put them at risk. If an accident were to occur, it would be the taxpayers who would be paying for the damage control and cleanup which could turn into billions of taxpayer dollars.

The other point I wanted to make, wouldn't it be safer to ship radioactive wastes closer to where nuclear plants are considering the majority of all nuclear waste comes from the midwest and the east coast. It would same more money and lessen the risk of attacks and accidents. Shipping this waste thousands of miles away from the source would make you more vulnerable to an accident. Drivers of trucks and trains would be driving through high grade canyons and over mountain ranges with heavy snowfall and black ice which is unpredictable.

I have a couple of questions for you to consider. Is there a guarantee that this waste can be cared for the

next 10,000 years? Yucca Mountain and the proposed PFS storage site are in very seismically active areas. Can you make sure that there will not be any large scale earthquakes for the next 10,000 years? Or what can you do to keep it completely safe if a large scale earthquake were to occur? What will Private Fuel Storage do with the waste if Yucca Mountain is not passed?

And, lastly, it appears that I may be the youngest person in here which I wish there were more people my age listening in on this because in 20 to 40 years from now, most of you will have retired and it will be my generation making these decisions. But, to tell you the truth, I don't want to have to make these decisions. I want us to all learn from our lessons about how complicated and destructive the nuclear industry is and I want it to be phased out at least until there's a safe way to take care of this problem.

It seems to me if you cannot handle the nuclear waste that has been created, maybe it's time to stop making nuclear power until you know what to do with the highly toxic radioactive waste.

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

ABKOWITZ: Thank you, Elizabeth. I shudder at the prospect of working for another 20 to 40 years, but then again that will mean I will live to a long age, I suppose.

Irene will be followed by Jason Groenewold.

NAVIS: My name is Irene Navis. I'm the planning manager for Clark County Comprehensive Planning, Nuclear Waste Division. I want to thank the Board for bringing this variety of perspectives to this forum and I realize you don't have control or a say in all of the things that were talked about over the last couple of days, but I certainly appreciate you providing a forum to have them discussed.

I think it's important for all of us to focus on the lessons learned from the other entities that have spoken here at this meeting and particularly the PFS project which is the closest thing we have to study to Yucca Mountain besides WIPP. I hope that the TRB will consider the cumulative impacts of combined shipments between PFS and Yucca that are likely to take place. I think that's one area of technical study that hasn't received enough attention.

I also want to talk a little bit about risk perception and how it pertains to what Clark County has been working on over the last 15 years. Clark County has done extensive work in the area of socioeconomic impact assessment, in particular stigma induced perception of risk.

Just to give you a little background on Clark County, those of you who are new to the Board and haven't heard me give these facts and figures before, we're an area of 8,000 square miles, a mix of urban, suburban, and rural communities. We have a population of 1.6 million people in

Clark County and we enjoy the visits of 36 million people per year to our county. We have between 4,000 and 6,000 new residents per month coming to Clark County. Per month, yes. And, that provides, as you can imagine, for all of us involved in the Yucca Mountain Project a huge challenge in terms of constant public outreach and providing credible and timely and regular feeds of public outreach and public interaction on this issue.

We did a survey in conjunction with the university, UNLV, in 2001 just after the September 11th attacks. We surveyed 1,000 visitors. Nearly 50 percent of those surveyed said that they would never return to Las Vegas in the event of a shipping accident involving high-level waste. 25 percent would not return when shipments commenced even without an accident. Clark County provides the economic engine through gaming and tourism for the entire state and we can't afford such an impact to our economic stability. So, it would impact our livelihoods, our tax base, and our government service provision which all depend on this income for that basis.

In addition, as you can well imagine, Las Vegas is an internationally recognized destination. Just one example of how media amplification and media attention can influence what happens in Las Vegas, the 9-11 terrorists did some planning activity in the Las Vegas area, and as soon as that

news hit CNN, we had weeks and weeks of international and national attention to Las Vegas just because of the visits from the terrorists took place in our area.

In 2002, Department of Energy's Final EIS on Yucca Mountain reversed its previous position and acknowledged that potential property value impacts and stigma impacts could occur due to the repository location. We have many, many reports available on our websites and on CD, and if you would like to have those reports, those of you who are new to the Board and may not have seen them, we'd be happy to provide them to you.

The number one issue in Clark County after many, many surveys has always been public safety and so we have a lot of focus on that. Property values has been the #2 issue of concern. And, the other large issue is impacts to government services. This is a huge concern as it's considered a long-term unfunded mandate for local taxpayers because most of the residents of Clark County don't believe that the Federal Government would be able to subsidize or help offset the costs of what it will take to facilitate these shipments.

Thank you for your time. I appreciate being able to spend a day and a half with the Board.

ABKOWITZ: Thank you, Irene.

Our final commenter is Jason Groenewold.

GROENEWOLD: Thank you again for the opportunity to speak today. My name is Jason Groenewold. I'm the director of HEAL Utah which is the Healthy Environments Alliance in Utah.

I'd like to discuss some of the issues that Mr. Niles raised in his presentation. And, specifically there was a slide about knowledge and credibility. But, let's be very clear. Knowledge does not equal credibility. All we have to do is look at the situation with Ken Lay (phonetic) to know that he may be one of the most knowledgeable people on energy trading, but he's certainly not the most credible. And, I think when we start looking at the Federal Government and the industry's role in nuclear waste policy that's been created in this state, we need to be very clear that knowledge does not equal credibility.

When we look at the role of the media in discussing these issues, I beg to differ that it's easy to get attention drawn to nuclear waste issues all the time. We see constantly in our work that media outlets cut their budgets all the time and put more responsibilities on reporters and make it more and more difficult for them to dig deeper into issues. And, one of the areas where they cut most often is environmental reporting. You know, so the issues that do finally make it onto the paper or into the television usually have risen to a certain level to get there.

When we look at industry credibility, you know, it's hard to really stand by and accept some of the assurances we've been given when--for example, Mr. Parkyn is certainly a wealth of knowledge and provides some very informative information and specific details. But, when one of the most basic premises of your proposal is that it will be a temporary site and yet you have not put forward any detailed plan as to how this site will be closed and where this waste will move, it's hard to buy into the credibility of the argument that this is, in fact, an interim storage site. When you talk about providing training for emergency responders, I could be corrected, but I have not yet heard of one offered training that's occurred here locally. And, I'd be willing to bet that if you asked the vast majority of emergency responders, they wouldn't be able to tell you who PFS is.

Again, looking at industry credibility, what does it say about the credibility of an industry when we had a situation here in Utah where the owner of a radioactive waste disposal facility admitted to giving money under the table to a regulator who was in charge of issuing a license that allowed that facility to operate and did so for years without it ever making it to public attention? What does it say when last fall we had provisions slipped into an energy bill to reclassify highly concentrated radioactive waste from a

cleanup site in Ohio so that it could be dumped in Utah? And, the industry told us it was nothing hotter than anything that they had current accepted, and yet it was only through intense investigation that we found out in its diluted form, if it were under state regulations, it would have been at the top end of Class C waste, something which is prohibited here? And, yet, full page ads were taken out by the industry saying this isn't anything hotter, this is just activists trying to inflame and put out rhetoric. Time and time again when the credibility suffers, you come back to the saying that fool me once, shame on you; fool me twice, shame on me.

I'd like to talk about the Federal Government's credibility just briefly. It was mentioned nuclear weapons testing. Utahans are encouraged to go out and watch the nuclear blasts as they occurred and have picnics with their family. How do you overcome that then when generations later, people are still suffering from the health effects of that? How is it that you can have both Presidential candidates identify a terrorist obtaining nuclear weapons as one of the greatest security risks to our nation and that you have people detained as suspected terrorists who had plans to create dirty bombs and then say it's an irrational concern to worry about how these materials are moving across our country or who may intend to do something, whether or not they inflict the most harm or not? You know, a lot of times, one

could argue that the terrorists would have killed far more many people by flying an airplane into an athletic stadium, yet they didn't. You know, sometimes, they choose targets that are meant more to send messages than to inflict harm.

So, I think that we have a major dichotomy. When we look at credibility again, could someone stand here and tell us that Yucca Mountain was chosen based solely on scientific criteria or was it the political science that dictated the sole study of this facility as a repository? And, is someone going to stand up here and tell us that, well, when it (inaudible) throughout the 10,000 year protection standard and now we have an EPA administrator who is considering asking Congress to overrule that standard and default back to a 10,000 year standard that was based on science?

And, I think part of the problem and the reason you don't see more people here is that we come to these hearings --and I appreciate that this Board is looking at a narrow part of this process and I'm articulating some of these issues because my hope is that knowing your level of placement within these decisions that this will carry on up to the final decision makers. But, honestly, ask yourself, you know, you'll take public comment, but how much does it really truly register unless there's a PhD after someone's name when that comment is given? And, I think, from the

public's standpoint, time and time again the concerns that we raise, especially about major policy questions, are too often dismissed because we don't come with a doctorate. And, that's a challenge that I think regulatory agencies face.

Kind of in summary, I think science should advise, it should not dictate our decisions. Science does not always have the ability to account for human error and what that may cause upon a particular proposal. Science can be wrong. What did science tell us about PCVs, DDT, Ford Pintos, asbestos, lead paint, or nuclear energy that would be too cheap to meter?

I think if you looked at the risk factors that Mr. Niles put up in the very first part of his presentation, they had to do with was it fair, who bore the brunt of the risk. And, the reason you can't overcome that is because that's a basic value system. You know, if you're raised to value equality, if you're raised to value justice and fairness, you can't see this proposal as anything, but violating those basic values and principles that we were raised with.

The reason that the Goshutes were targeted, there's a lot of open space between here and the east coast. All you have to do is drive across the country to see that. Why was a small impoverished Native American tribe singled out? It's not because it was the best site. It's because it was the easiest target. And, I think we have serious questions,

moral questions, that we have to answer.

Finally, I would just say that when you're looking at what is the acceptable risk, what are the potential problems that could go wrong, I think, Three Mile Island taught the nuclear industry that you can't afford to get this wrong. You screw up once with the transportation, you are going to have serious problems on your hands. I hope that whatever the final decision is--and there's a lot of assumptions that it's going to be Yucca Mountain which begs a lot of questions about where we're headed because PFS is basing that as their decision--and it's the wrong decision, we're going to have a lot more transportation of nuclear waste and a much bigger problem on our hands.

So, I thank you again for your time and for you coming to Salt Lake City. I hope that we do give serious considerations to why it is that we've selected the two states as the repository for the waste when they weren't responsible for creating it.

Thank you.

ABKOWITZ: Thank you, Jason.

This concludes the panel meeting's formal agenda. I want to thank everyone that has participated in these meetings for their contributions, as well as their civility.

The Board will be preparing a letter to send to the Department of Energy that will summarize its findings and

recommendations based on the information that we have collected and will digest. When that occurs and usually it's several weeks from now, that will be posted on the Board's website and you'll have an opportunity to see it there.

Again, thank you very much and safe travels.

(Whereupon, at 11:49 a.m., the meeting was adjourned.)