

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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PUBLIC MEETING ON REVISION TO  
SPENT FUEL CASK TRANSPORTATION STUDY

Mountain View Casino and Bowl  
1750 Pahrump Valley Road  
Pahrump, Nevada

Thursday, December 9, 1999

The above-entitled meeting commenced, pursuant to notice,  
at 10:00 a.m.

PARTICIPANTS:

CHIP CAMERON, Facilitator  
MICHAEL DORAME, Nevada  
ENGLEBREK TIESENHAUSEN, Nevada  
BILL BRACH, NRC  
ROBERT LEWIS, NRC  
DR. CHARLES MASSEY, NRC  
LES BRADSHAW, Nevada

PARTICIPANTS: [Continued]

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& SALLY DEVLIN, Nevada

1	KENTON BEIRLE, Nevada
2	EARL EASTON, NRC
3	GRANT HUDLOW, Nevada
4	ALICE GANGER, Nevada
5	LARRY GRAY, Nevada
6	JIM WILLIAMS, Nevada
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## P R O C E E D I N G S

[10:00 a.m.]

MR. CAMERON: We should have everybody take their seats.  
We'll get started.

I guess we're going to have Christmas music along with the program, so we'll just try to work around it. I'd like to welcome all of you to this public meeting. My name is Chip Cameron, and I'm the special counsel for public liaison at the Nuclear Regulatory Commission. And it's my pleasure to serve as your facilitator for this meeting this morning. And as the NRC staff will be telling you in a few minutes, the NRC is updating a study on the spent fuel transportation packaging. In this case, specifically the shipping casks that are used for shipping spent fuel. The NRC is updating that study, and wants to make sure that the public, who may be affected by spent fuel, knows what the NRC is doing, and gets comments and recommendations from you before initiating the study. And so two objectives today are to provide you with information, and we're going to have some real brief NRC presentations for you to give you some background on this. And then we're going to go out to you to hear what your comments and concerns are.

If you would like to say something when we go out for discussion, just raise your hand and I'll call on you, and I'll bring this mic out to you, or you can use the microphones here, if you want, but please state your name and affiliation, if appropriate, for the record because we are taking a transcript. Tracy, our stenographer, is over there, and will be recording all of your comments.

ANN My role as the facilitator will just to try to help you  
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1 keep the meeting organized and on schedule, and to make sure that all  
2 of NRC points are clear to you. If we need to clarify something you  
3 don't understand, let's make sure we ask the NRC staff to explain, if  
4 we need to.

5 I also want to make sure that everybody gets a chance to  
6 speak today, and I'm not going to set any set time limit on your  
7 comments, but it maybe that in order to give others a chance in the  
8 audience to talk, I may have to ask you to just summarize what you're  
9 saying, so that we can move on to someone else.

10 The focus of the meeting is on spent fuel transportation  
11 package performance. Okay. In other words, how does the shipping cask  
12 respond to potential accidents. And you'll be hearing more about that.

13 But we realize that there's a lot of concerns about spent fuel  
14 transportation that may be broader than just this study that the NRC is  
15 doing, so we'll try to answer your questions on those concerns.

16  
17 Also, we do have some people in the audience from other  
18 federal agencies, and I'll just try to point them out now, and they may  
19 be able to answer other questions about the total regulatory framework  
20 for spent fuel transportation. We have Rick Boyle back here from the  
21 Department of Transportation. And Bill Lake right over here is from  
22 the Department of Energy. And Bob Alcott from -- also from the  
23 Department of Energy. And there are others here from local governments  
24 in Nevada, other than Nye County. And, of course, Les Bradshaw, who  
25 is -- coordinates the high-level waste program for Nye County, is back  
here. And we'll be going back to him for a minute. And I would just

ANNke to thank Les and Nye County, generally for inviting us to come out

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1 to talk to you today about these particular issues.

2

3 What I'd like to do right now -- yes, sir?

4 MR. DORAME: You also have local representation from Inyo  
5 County.

6 MR. CAMERON: Oh, great. I think we met before. Do you --  
7 you're from Inyo, right?

8 MR. DORAME: Yes, I am.

9 MR. CAMERON: Why don't you just introduce yourself?

10 MR. DORAME: My name is Michael Dorame, and I'm the Inyo  
11 County 5th District Supervisor. And we're very interested also in the  
12 transportation issues related to this, simply because of the potential  
13 use of State Route 127 through our County. Thank you.

14 MR. CAMERON: Thank you, Michael, and welcome for being  
15 here. I should let Englebrek (phonetic) introduce himself, since we're  
16 going to county government representatives.

17 MR. TIESENHAUSEN: My name is Engelbrecht von Tiesenhausen,  
18 I'm with Clark County.

19 MR. CAMERON: Okay. Great. Well let's get started. We do  
20 have to end the formal session at 12:00, but the NRC staff will be here  
21 to talk with all of you after we're over. I'm going to go to Bill  
22 Brach, who is the director of the Spent Fuel Project Office where this  
23 study is taking place. And Bill is going to welcome you and talk a  
24 little bit about what's going on. Bill.

25 MR. BRACH: Thank you, Chip. Good morning. Do I need  
to -- Chip, excuse me? Chip, do I need to use the microphone?

ANN MR. CAMERON: Ah. Can you hear him, Tracy, when he's  
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1 talking from here?

2 COURT REPORTER: I can hear everything.

3 MR. CAMERON: All right. Okay. Okay. Oh.

4 MR. BRACH: Okay. Again, good morning. Want to begin  
5 welcoming you to this public forum, this public meeting, as Chip  
6 mentioned I'm Bill Brach. I am the director of the Spent Fuel Project  
7 Office. The Spent Fuel Project Office has arranged for today's meeting  
8 to discuss the transportation study we're conducting. We're the people  
9 who will be making the decisions on what gets studied and how. My  
10 staff and I welcome the opportunity to be here with you today, and to  
11 listen to your concerns and your comments in the area of spent fuel  
12 transportation. We appreciate your very specific interest in spent  
13 fuel transportation, and your request that we meet with you here today  
14 in Pahrump.

15 Let's begin by giving you a little bit of background about  
16 the NRC, and the Spent Fuel Project Office. The NRC is an independent  
17 federal regulatory agency. Like other federal regulatory agencies, we  
18 set and we enforce safety standards. The responsibilities of the Spent  
19 Fuel Project Office includes spent fuel transportation, and spent fuel  
20 storage. We, NRC, do not actually move the fuel, we regulate those  
21 that do. We approve and inspect the containers or casks that contain  
22 spent nuclear fuel during the transportation. NRC has significant  
23 experience in regulatory atomic energy activities, such as nuclear  
24 power plant operations, medical uses of radioactive materials,  
25 radioactive waste disposal and storage, and transportation of  
radioactive materials. The NRC staff has more than 20 years of  
experience in reviewing cask designs and construction, reviewing fuel

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1 characterizations, as well as observing the nuclear power plant  
2 operations related to transportation. We use that experience every day  
3 to make sure that the activities we oversee are done safely. We're  
4 confident that current safe -- spent fuel transportation activities are  
5 being done safely.

6 Our mission is to protect public health and safety. How do  
7 we do that? We make rules. We issue regulations. Set the standards.

8 We review what licensees plan to do before they do it. We use  
9 standardized criteria in reviewing of the applications. We issue  
10 approvals.

11 That's not working?

12 MR. CAMERON: Yeah. You better use this kind. Especially  
13 with our competition.

14 MR. BRACH: Okay. Got you.

15 MR. CAMERON: It should be on.

16 MR. BRACH: Is it on? Excuse me. I trust everyone could  
17 hear me before hand, except maybe the tape.

18 As I mentioned, we reviewed what licensees plan to do,  
19 before they do it. We use a standardized review criteria to assure  
20 consistency across our reviews, as well as to assure that the  
21 applications are adequate before we issue the approvals, before we  
22 issue the licenses or the certifications. We provide guidance on how  
23 licensees can meet the requirements, the rules. And this guidance is  
24 also available to the public for review and comment. We inspect  
25 performance against what is required by the rules and by the licences,  
and enforce compliance when performance improvements are needed to meet  
the rules, the requirements, and the conditions of a certificate, or

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1 the license.

2 Let me discuss just very briefly the current study. Let me  
3 give you some points and perspectives on transportation safety and  
4 spent nuclear fuel, the topic that brings us altogether today.

5 Radioactive materials are just one category of hazardous materials that  
6 can be transported, and spent fuel is a small percentage of the  
7 shipments of all radioactive materials. Our contractors, Sandia  
8 National Laboratories, will be carrying out the upcoming study you'll  
9 hear about today. But the NRC staff will be directly involved in  
10 evaluating the results and recommendations in how to proceed. I  
11 want to take the opportunity right now to identify some of the NRC  
12 staff members who are here today, and who will be directly involved in  
13 this study. To my right, Rob Lewis is the project manager for this  
14 activity. Rob is also a criticality and shielding expert involved in  
15 the review. Sarah Coplo (phonetic). Sarah, could you stand, please?  
16 Sarah is our containment expert. Ron Parkhill (phonetic). Ron is our  
17 thermal expert. These are the technical reviewers, and others in our  
18 office back in Rockville, Maryland, who will be directly involved in  
19 the technical review and technical aspects of our study in conclusions  
20 and recommendations.

21 I want to also introduce additional NRC people that are  
22 here today. First to my right, Pat Eng (phonetic). Pat is the  
23 section chief, who has responsibility for the study. Also, sitting  
24 next to Sarah in the back, is Earl Easton (phonetic). Earl is the  
25 chief of technical review section in the Spent Fuel Project Office, and  
has much involvement in our study. And also want to introduce another  
individual from the NRC, Janet Cotra (phonetic). Janet's from our

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1 Division of Waste Management. And Janet's division is directly  
2 involved in repository reviews, and repository issues. Janet is here,  
3 and I've had some earlier discussions before the meeting highlighting  
4 the importance within the NRC of the interface between those in my  
5 organization that are involved in transportation and storage, and those  
6 at NRC that are involved in repository reviews and activities.

7 I'd like to also introduce the Sandia staff that are here  
8 today, and that would be working for us in preparing the study. First,  
9 Dr. Charles Massey. Charles is the manager for Sandia National  
10 Laboratory in charge of the project. And also Drs. Jeremy Sprung and  
11 Dr. Ruth Weiner (phonetic)-- AUDIENCE MEMBER: Jeremy's not here.

12 MR. BRACH: Excuse me. Dr. Ruth Weiner is here, who are  
13 principal reviewers in support with Charles on the study. Over the  
14 last few years NRC has been making a concerted effort to integrate risk  
15 into our decision-making process. We do this by making sure on an  
16 ongoing basis that we understand the risks of what we regulate, and we  
17 look at and look for new ideas, new methods to assure ourselves and you  
18 that the -- that what we do every day continues to be the most  
19 effective to assure the public health and safety. NRC's goal is  
20 clearly to be effective, and efficient, and realistic by conducting  
21 impartial and rigorous evaluations of our activities. We strive and  
22 want to increase public confidence by soliciting public input and  
23 comment and making decisions in a very much of an open way. I mention  
24 again the purpose of today's meeting is to receive input from you,  
25 members of the public, with regard to concerns and issues you have --  
may have on spent fuel transportation. And of course our fundamental  
goal is to assure and maintain safety of activities we regulate.

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1           The effectiveness of the overall transportation process has  
2   been proven successful. And safe transport is clearly a team effort.  
3   The shippers have the ultimate responsibility for the shipment. To the  
4   owners of the fuel, they make the shipment plans, preparations, and  
5   arrangements. The carrier is clearly responsible for their vehicle,  
6   its operation and following the shipper's plan. The regulators, and as  
7   Chip had mentioned earlier, the number of federal agencies represented  
8   today, it's a team effort on part of the regulators to assure the safe  
9   transport. The Department of Transportation, DOT, is the primary  
10   authority on transportation matters. The NRC, our role is to approve  
11   the packages for spent fuel shipments, and set physical protection  
12   standards for the transportation. The States have a integral role as  
13   well, and while State roles vary from State to State, the States  
14   primarily set the commercial driver's license requirements, issue the  
15   vehicle approvals, select preferred routes for transportation, as well  
16   as establishing the truck limits.

17           There as well are multiple levels of emergency response,  
18   with increasing ability to deal with transportation emergencies.  
19   Typically first on the scene would the local and State responders, but  
20   in support of them as maybe needed, are additional trained hazmat teams  
21   that can be called as available, as well as federal assistance through  
22   the Department of Transportation's National Response Center. And for  
23   every transport of spent fuel, there clearly is a requirement and  
24   practice for notifying the States well in advance of the shipments, so  
25   that adequate arrangements can be made with the State and local  
  officials of knowledge of and preparation for the transport.

ANN           As I mentioned previously, public involvement is a key and  
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1 critical part of our efforts, and you can help us today, and throughout  
2 the rest of the study by telling us what you think. And I trust that  
3 you will be candid with us in your views. We want to hear from you  
4 your opinion about NRC's and Sandia's ideas for the study. What your  
5 concerns are, and how you think they could be addressed as part of our  
6 study. If you think of something that's not discussed, please mention  
7 it. If you have ideas about how to study and issue, we want to hear  
8 them. The more specific your comments are, the better job we can do in  
9 building a proposal that will address the issues effectively. And  
10 please, as I mentioned, be candid with us. I give you my personal  
11 assurance, guarantee that every comment will get my full consideration.

12 After we've incorporated the feedback from this and  
13 previous meetings into a comprehensive study -- excuses me,  
14 comprehensive summary, it will be available to you, and we'll be  
15 meeting again to receive your feedback on that summary, and ideas on  
16 how to proceed in the study.

17 Rob will be discussing with you shortly how you can keep us  
18 informed -- or how you can keep informed, and keep your views provided  
19 to us as the study progresses.

20 In closing, this is a start of an ongoing dialogue. I want  
21 to stress to you that the purpose for today's meeting is to let you  
22 talk so that we can understand your concerns, and your issues, and  
23 ideas, and suggestions. We're here to listen. And with that, thank  
24 you very much, and I'll turn it back to Chip.

25 MR. CAMERON: Okay. Thank you, Bill, for setting that good  
open tone for our meeting today. And we do have two more short  
presentations for you on the background of the study and then we will

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1 out to you.

2 Rob Lewis is the project manager of this study. He works  
3 for -- in Bill Brach's office, and Rob is going to tell us a little bit  
4 about the study. Rob, I think you'll have to use this particular  
5 microphone too. Okay?

6 MR. LEWIS: Sure. Thank you, Chip. Thank you,  
7 Mr. Bradshaw for hosting us today. And thank you everyone for coming.

8 My main goal is to describe this study that we're just  
9 starting. Now this study, as Bill mentioned, will look at how a spent  
10 fuel transportation cask performs during an accident. We're just in  
11 the planning stages of this study. We don't have any results yet. And  
12 we are -- before we do any work, we're going out trying to get public  
13 input, because of our working for you on doing this project.

14 But before discussing the study specifically, I think it's  
15 important that I talk a little bit about the safety of shipping spent  
16 fuel, because spent fuel shipments are made today, and they have been  
17 in the past. And they've been done safely, and we believe in the  
18 approach we're using for those shipments.

19 Why do we believe that the current rules and approach we  
20 use for spent fuel shipments are safe? Well, we know this because of  
21 the cask performance standards we use, the history of safe shipments  
22 that we've accumulated, and the technical studies that we've done in  
23 this area. We've studied it extensively for over 20 years. Spent fuel  
24 casks are designed to pass a rigorous set of tests that are developed  
25 considering the possibility of accidents. Spent fuel casks are the  
primary safety device that we rely on in an accident to make sure that

Everyone is safe.

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1           The tests that we use are a series of impacts, fires and  
2 immersion that each cask design must, by analysis or by testing, must  
3 demonstrate that it can survive these tests intact. We can discuss  
4 this sequence of test in much more detail after we turn it over to you,  
5 if you want. I just put this up as background because I had provided  
6 this handout, and I wanted to mention what it was about. Our starting  
7 point for the package performance study will be a cask that meets the  
8 NRC's standards.

9           I just wanted to mention briefly the history and the  
10 technical studies before I move on. Now we've made, in the last 20  
11 years -- I should say our licensees have made in the last 20 years  
12 about 1,300 shipments in NRC certified spent fuel casks. Of those  
13 shipments there have been eight that were involved in accidents. In  
14 every one of those accidents, the cask did its job and there was no  
15 release of radioactive materials. So we're very proud of that safety  
16 record we've accumulated. And it's very strong evidence that the  
17 approach we're using is working. In -- now if you were interested in  
18 the routes that those 1,300 shipments took, their destinations, and the  
19 origins, we publish that information annually. For -- and anybody can  
20 get that data. Just speak to one of us and we'll discuss how you can  
21 obtain that information.

22           But we're really here today to talk about technical  
23 studies. As I mentioned, we're starting a new technical study. And as  
24 I mentioned, we've been looking at these issues involving spent fuel  
25 shipments for over 20 years. All of the studies that we've done have  
always showed that spent fuel shipments, under our current rules, are  
safe. As we get new tech -- as we get new analytical capabilities, new

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1 tools to use to analyze the cask, and as the technologies of the cask  
2 have evolved in the last 20 years, we've continually looked at the  
3 current situations to keep convincing ourselves that what we're doing  
4 is appropriate and safe.

5           These are not an exhaustive list of the studies we've done,  
6 but these are the more important studies. And I really want to call  
7 your attention to the last two, because those are two studies that are  
8 in development right now. Short -- in the beginning of next year, we  
9 will be issuing a report on an update of spent fuel shipment risk  
10 estimates. Now what that is, that's a re-look at some of the  
11 assumptions and analysis that was done back in 1977. Because since  
12 1977 there's a lot of things that have changed, the cask are larger,  
13 they use new materials in them, they have new technologies, like  
14 storage and transportation cask, dual-purpose casks. Our capability to  
15 analysis the casks has increased dramatically. The tools we have are  
16 better, and the computer power, as everybody knows, computers have  
17 become much more powerful. Every seven years, or something, they  
18 double in power. And projects such as Yucca Mountain really influence  
19 what we project are the timing, the number of shipments, the timing of  
20 the shipments, and the origins and destinations of the shipments. So  
21 as projects like that develop we look at some of the work we've done in  
22 the past to see if the conclusions that we came to back then are still  
23 valid.

24           Dr. Charles Massey will discuss a little bit about these  
25 last two studies. What we're here today to talk about is this last  
bullet. This -- 2003, or so, we will have completed this project that  
we're just starting today, and what that will be is a look at how the

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1 spent fuel cask perform in an accident. It's really a supplement to  
2 the 1987 study, whereas the report we're issuing next year is a  
3 supplement to the 1977 study. Now together all of these studies, if  
4 you will, form a puzzle that fits together and makes our evidence that  
5 approach we use is safe -- the approach that is laid out in our  
6 regulations is safe.

7 So regarding this last study. We are working with Sandia  
8 Labs to, as I said, build upon the 1987 model study, and the project  
9 that they're working on for us that will be released next year. Since  
10 this study builds upon the 1987 study, it's kind of taken on this name  
11 Model Study 2. We're also calling it prefer -- what we prefer to call  
12 it is Package Performance Study. The name Model Study 2 is kind of  
13 unfortunate to us because we're not redoing the Model Study, which is  
14 the 1987 report, we are just trying to build upon the results. Because  
15 we still believe that the 1987 report is -- provides good information,  
16 it's still valid, and its conclusions are still valid.

17 We will use this upcoming package performance study to  
18 focus our resources, and to focus our licensee's resources on the  
19 issues and design features for spent fuel cask that are most important  
20 to ensuring safety during accidents. And that's what we call at NRC,  
21 we call that a risk informed approach. You focus on the issues that  
22 are most important to safety, and by doing so, the overall safety of  
23 the system, of an already safe system, the overall safety is increased.

24 The step-by-step method we plan to use for package  
25 performance study is shown in this second bullet. Now that's the  
method we've been using for all of the accident studies I showed. The  
method is very logical. You look at what accidents could happen, you

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1 try to determine the forces that are created in those accidents, you  
2 determine what would happen to a cask, if that cask had been subjected  
3 to those forces, and then you try to predict the release. In the final  
4 step we would like to also look at some of the more severe accidents  
5 that have happened throughout the country, not accidents that involve  
6 spent fuel necessarily, but big fires, and big train derailments that  
7 have happened, and say if a spent fuel cask had been in that accident,  
8 what would have happened? It's kind of an example study, and that  
9 provides us some useful insights into how the cask perform and what  
10 kind of accidents they could be involved with.

11 Now this project, we believe, will have physical testing,  
12 actual physical testing. In the past studies I've mentioned, we've  
13 relied on analytical tools, computers and engineering judgment, but we  
14 haven't actually done actual physical testing of casks as part of our  
15 risk studies. This study we think we're going to do that. And that's  
16 the reason we picked Sandia Labs to do this study, because Sandia Labs  
17 has facilities to do testing. They've done testing of radioactive  
18 material's packages. They've done a lot of it. And they know how to  
19 analyze the tests for -- and interpret the results of the tests. And  
20 the role of physical testing is also the reason that we're trying to  
21 get the public involved throughout this project, because physical  
22 testing is expensive to do, so if we do it, we have to do it  
23 responsibly. We have to be efficient and collect the most useful data,  
24 and data that was really related to furthering the safety case for  
25 these shipments.

As I mentioned, we've contracted with Sandia Labs for the  
initial part of this project. There is no long-term contract yet, but

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1 we do have a contract with them that goes through next -- early next  
2 year for them to do what we're call a scoping study. Now the goal of  
3 this scoping study is to go out and collect the public's views about  
4 what follow on work should be done to our previous risk studies. To  
5 also do a literature search of information. State of Nevada, for  
6 example, has issued reports related to our 1987 study. Sandia's  
7 looking at what the State of Nevada had published in -- and seeing how  
8 information in there could help us do follow on work, and that's what  
9 this meeting of today is really about. We're in the process right now  
10 of collecting views for the scoping study. And the scoping study's  
11 product is an issues and resolution options report. And that's akin to  
12 a proposal from Sandia from follow on work. We expect that to be done  
13 in May. We will share that with you before we proceed with this  
14 project. So anything you say today will be acknowledged in that  
15 report. And we will share the report with you before we proceed to  
16 make sure that we understood your comments.

17 There are forms in the back of the room I'd like to  
18 mention. If you don't get a chance to speak today they have welcome  
19 across the top, you can -- it has three questions to kind of lead  
20 you -- lead your thoughts, but you don't have to use these questions.  
21 If you have any comments, just fill out the form, leave it with us  
22 today. If you can think of it now, or on the back of the form it has  
23 an address. If you just fold it in three and staple it, you can mail  
24 it to us. And if we get those comments by January, we'll make sure  
25 that they get into the May report.

AUDIENCE MEMBER: Is there a particular day in January?

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MR. LEWIS: The end of January.

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1           In conclusion, we're working for you on this project, and  
2 we need you to be involved. We have come up with an approach to keep  
3 you involved. These are the three things we have come up with. If  
4 there are more things, please feel free to let us know. We're doing a  
5 web site. We have a web site already in existence. It might be the  
6 best way to keep involved with the project if you have access to the  
7 Internet, because we frequently update the information on the web site.

8       It has the agendas for today's meeting, for example, and that's the  
9 address for the web site. In addition, we're holding workshops like  
10 today. We were in Henderson yesterday. And in November 17<sup>th</sup> we were in  
11 Bethesda, Maryland. As I said, early next year we'll be issuing a  
12 report that Sandia's doing. And we'll also be issuing this issues  
13 report that I just mentioned that's about this study, how we will do  
14 this study. And once we have those two reports out, we want to have  
15 additional workshops. We want to come back after you've had a chance  
16 to digest the reports we write. And get your feelings about what we're  
17 doing.

18           We have a mailing list. There are some forms on the table,  
19 they're color forms, and they have a grayish background, and across the  
20 top it says, "How to stay in touch with this study." If you fill that  
21 out and leave it with us, or if you want to mail it into us, that's  
22 fine too, we'll make sure that we put your name on the mailing list.  
23 Now the mailing list is for people that prefer not to use the web site,  
24 or for any other reason would rather get the information in a hard copy  
25 instead of using the computer to get it.

          In conclusion, I probably ran over a little bit, but I want

ANN thank you for your attention and we're looking forward to hearing

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1        what you have to say today.    MR. CAMERON:    All right.    Let's go to our  
2        final short presentation to Dr. Charles Massey from the Sandia Lab in  
3        Albuquerque, New Mexico.    Dr. Massey and his group are going to be the  
4        ones that are doing the scoping study that Rob mentioned, and he's  
5        going to give us an overview of spent fuel casks.    All right.    Charles.

6        Okay.        DR. MASSEY:    Thank you, Chip.    Good morning everyone.    As  
7        Chip said, I am the manager of the Transportation Safety and Security  
8        Analysis Department at Sandia National Labs and will be performing the  
9        study for the Nuclear Regulatory Commission.

10        I want to give you just a very brief overview of spent fuel  
11        cask, some of the particular components of it, and features that we're  
12        interested in.    Tell you based on that series of studies that Rob Lewis  
13        discussed briefly, what the current state of knowledge is, in our view,  
14        on spent fuel cask performance in these sort of severe accident  
15        environments.    And some of the suggestions that we are currently  
16        considering for proposing to NRC to stimulate some thought on your  
17        part, and give us feedback on other areas that you may have interest.  
18        Here I put a -- sort of the cartoon diagram of a spent fuel cask.  
19        Point out a couple features of here.    This is the main body of the cask  
20        itself.    Very substantial structure, typically a stainless steel outer  
21        shell.    And I've put here on the side a cutaway we've made, it's actual  
22        full-size of a cask that's currently used on the road.    You can see the  
23        stainless steel outer shell.    Inside that is usually some type of  
24        neutron absorbing, shielding material.    Then you get really to the  
25        inner cask wall here itself.    This is the main structural part of the  
      cask.    Here we've got an inch and a quarter of stainless steel, almost  
      ANive inches of lead for x-raying gamma shielding, and then another

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1 three quarters inch of stainless steel. This is a substantially strong  
2 material cask design.

3 Once the spent fuel itself is placed inside the cavity of  
4 the cask, a lid is attached to the cask, there's a seal. Essentially  
5 people -- you may view this as some sort of a o-ring. Cask lid put on  
6 top. It's bolted down. An impact limiters, impact absorbers are  
7 placed on the end. These absorbers have some type of compressionable  
8 material which will help absorb the force of collision.

9 Now based on our review and our experience of what we've  
10 done to date so far in studying the response of spent fuel packages to  
11 severe accidents, and these are things not much -- or how do I want to  
12 frame it? Beyond those that are the cask are currently required to  
13 demonstrate performance to. We are looking at accidents at much higher  
14 speeds, higher fire temperatures, longer duration fires. What we're  
15 looking at is how can we predict the performance of the cask in these  
16 much more severe regimes? To do that what we like to do is, as our  
17 suggestions to the Nuclear Regulatory Commission, is one, go in and  
18 really update the accident rate data. Look at more current features of  
19 highways, and truck and train transportation. Increases in traffic.  
20 Different types of trucks and trains that are used. And then once we  
21 have some feel for what's the likelihood that there maybe a train  
22 derailment. Say okay if the train derailment takes place, what's the  
23 likelihood that, you know, the train car now is just sitting on its  
24 side, or it punctures some other type of vehicle, train car that may be  
25 carrying some fuel. What's the likelihood there's a fire, and how long  
could that fire be, and how hot could it be? So we really want to go  
ANN and do these -- take a much newer look at accident sequences.

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1           Again we like to look at cask collision forces much greater  
2     than 60 miles per hour. We like some feedback on what sort of speeds  
3     you like to see, and what scenarios can you envision can get us those  
4     speeds, and what types of collision, I guess other vehicles or  
5     structures that we may be faced within a collision.

6           We like to look at a fire test, fire duration scenario.  
7     Right now we're putting up an hour. One of the reasons we get to the  
8     time frames is how long could we have a fuel source, in this case fuel  
9     oil, how much fuel oil do we have available to fuel fire? And so right  
10    now we're contemplating proposing a one-hour test with a cask lying on  
11    the ground. We believe that the most likely scenario if there is a  
12    spent fuel accident, is that the cask will end up in some configuration  
13    lying on the ground. And so we'd like to a test and demonstrate our  
14    ability to predict performance of the cask and its internal contents  
15    using our computer codes, with a more realistic scenario.

16          Another area that we would like to do some experimentation  
17    on for this study, is actually to look at the spent fuel rod behavior  
18    itself inside the cask. For the previous studies we have actually not  
19    done any testing on the fuel rod behavior itself. Made some very  
20    educated judgments on the performance of the fuel rods inside the  
21    package, based on the forces that the cask itself sees. So what we'd  
22    like to do is simulate and do experiments on crushing and impacting the  
23    fuel rods itself to get a much better understanding of how those would  
24    perform in a collision and thermal environment.

25          And then finally, as Rob stated, we'd like to do sort of a  
   different approach to the whole simulation and testing of cask. In the  
   past the analysis have really just focused on using our engineering

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1 judgment and passed experience with other tests, and experiments that  
2 we've used to validate the computer codes that were used. But in this  
3 case we'd like to run the pretest predictions of the severe thermal and  
4 collision environments, and do the test to that environment, and then  
5 see how well our model's predicted. And our hope is that will show  
6 that the models that we had developed are adequate and very good at  
7 predicting the performance of packages in these severe environments.  
8 And do those -- that testing on a cask, and put representative that's  
9 representative enough of cask designs that are going to be used to  
10 transport the fuel, so we could use our models to predict performance  
11 on other types of packages.

12 And with that I will just leave up briefly, hopefully to  
13 give you a little bit of a guide on some of the areas we are  
14 particularly interested in getting your input on, sort of the basic  
15 topical areas that you may want to consider giving some feedback on, as  
16 well as any other issues that you may have. Thank you, Chip.

17 MR. CAMERON: Thanks, Charles. Thanks, Rob, for that  
18 overview. Now lets go out to all of you. And to start with, I'd like  
19 to have Mr. Les Bradshaw from Nye County talk to us about the Nye  
20 County Program and their concerns. You can -- I think you use these,  
21 Les.

22 MR. BRADSHAW: Thank you. If you wouldn't mind, or if you  
23 could just leave that one up there a little bit. I think those are the  
24 critical issues that we want to talk about. Nye County thanks NRC for  
25 coming to Pahrump, and coming to the site jurisdiction for the  
repository -- the proposed repository in Yucca Mountain. We get a  
ANNttle jaded in Nye County, and we slip and say the repository, because

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1 we get a little worn down on the issue of the probability that it won't  
2 come here, that something will be found that's not quite suitable.  
3 We're not -- we've neither asked for the repository. We've been asked  
4 to bear the nation's burdens. And Nye County takes accumulative --  
5 look at the accumulative impacts of the repository program on the  
6 County. And I'm not -- I -- we appreciate NRC coming out.

7 We know that this particular segment of NRC is here today,  
8 and NRC is doing a lot of other things, and there are representatives  
9 of some of the other pieces of NRC that are doing work here. We  
10 understand that you're here to do your piece of work. We are -- we  
11 resist the tendency of federal agencies to compartmentalize and stove  
12 pipe issues on every account. You have to realize the context in which  
13 you are doing this work, in which the repository comes to Nevada. We  
14 have a 18,000 square mile county. There's -- depending on who you talk  
15 to, anywhere from 29 or 30,000 to 36 to 38,000 people here. So about  
16 two people for square mile. Ninety-three percent of that is managed,  
17 or in some cases, actually vigorously managed by federal government  
18 agencies, including our good friends at the forest service, the BLM,  
19 Federal Fish and Wildlife, DOE, and about six different segments within  
20 DOE that we're not really suppose to talk about. We have two DOE  
21 people -- groups here that don't talk very well. And we have some  
22 others that we don't know about. The federal agencies that are out on  
23 the federal reservations doing their thing.

24 So we -- if -- and my job for the County is to coordinate  
25 the federal facility's activities, and there are so many kingdoms and  
fiefdoms and stove pipes to deal with that Nye County absolutely  
refuses to let the federal government agencies stove pipe their issues.

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1 We have to look at the total accumulative impacts of federal  
2 activities on the health, and safety, and well-being, and the quality  
3 of life in Nye County. We're fighting, and I'm saying fighting,  
4 although we do it in a congenial way, and we appreciate you folks being  
5 here. These are not personal issues with anybody, it's just business.

6 But we're fighting federal agency actions on a broad range of fronts,  
7 including trying to make a repository here be safe, if it indeed does  
8 come here. But we have issues out there with federal land management  
9 agency issues that are trying to impose oppressive management practices  
10 on Nye County and the use of the public lands. We have dangerous  
11 species issues that are further shrinking the amount of activities that  
12 we, as citizens of Nye County, can enjoy in our own County.

13 Here we come now to the issue of transporting nuclear  
14 waste, and we urge, as the headline statement from Nye County, we urge  
15 you folks to make this cask design as robust, as safe, as efficient, as  
16 risk-free as you possibly can on the citizens of Nye County. I draw  
17 your attention and look at these maps up here where we've tried to show  
18 the various transportation routes. Every possible route to get to  
19 either Gate 510 or Gate 100 at the test site is under consideration for  
20 transport of nuclear materials. Every single route that you could  
21 possibly think of, except perhaps the Pole Line Road from Tonopah to  
22 Gabbs, that's a dirt road, and there's nobody's talked about  
23 transporting nuclear materials on that. Bear in mind that we have the  
24 low-level waste campaign that's going on with thousands and thousands  
25 of shipments projected over the next 30 years that we have to deal  
with.

ANN

So you folks -- your thousands of -- not you folks, but the

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1 canisters that you're going to license, and that will be on the  
2 highways, are a part of a broader mix of federal issues here. So no  
3 additional risk to the citizens of Nye County would be our request.  
4 There is absolutely no reason that this country cannot afford to do  
5 full-scale repetitive physical cask testing in an open environment, so  
6 that the citizens of Nye County, and others, Inyo County has the same  
7 problems we do. Lincoln, Clark County, the citizens of this State, and  
8 I'm concerned about Nye County, can have the absolute assurance that if  
9 the cannister tips over, that nothing's going to happen. And we  
10 believe that that should be the testing criteria that Sandia goes  
11 forward with.

12 It's the same thing we said about the radiation protection  
13 standards that EPA and NRC and others are sort of fighting about. We  
14 don't understand why NRC wants to have -- adopts a 25-millirem  
15 standard. We like the EPA's better, 15, plus a separate water  
16 standard. We asked all of you folks to have a zero-risk, absolutely  
17 zero. And we don't understand why that isn't possible. We don't  
18 understand why the President of the United States, who would impose a  
19 100-millirem exposure limit on these citizens, why the agencies, why  
20 they won't come out and assure Nye County that there will be zero  
21 additional risk. Why can't we do that? I ask you that question. And  
22 I understand that the issue of, you know, 15 millirems is about like  
23 getting a x-ray or something, and you say, "Well you go to the dentist  
24 don't you, and get x-rays?"

25 Well, it doesn't matter. We go to the dentist voluntarily.  
We have not asked for this issue. We are being asked, yet again to  
bear a nation's burdens. All the other sites, the 100 -- the 70 or so,

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1 utilities with about, what is it, Jim, 110 reactor sites, are getting  
2 their burdens relieved by this process, that will come to Nye County.  
3 We estimate conservatively that 14 billion curies of additional  
4 radioactivity will come to Nevada, come to Nye County, will turn in a  
5 gate, either Gate 100 or Gate 510 we, in fact, that's another issue,  
6 which DOE won't even tell us where they're going to turn into the test  
7 site yet, so, I mean who knows? There's just so many uncertainties.  
8 The environmental impact statement that DOE recently put out as a  
9 draft, is so broad that, I mean it considers virtually -- not  
10 virtually, but, you know, basically so many alternatives as to routing  
11 that it's impossible for these folks here, folks that are -- that run  
12 town boards, county government, other agencies, I mean, if somebody  
13 wanted to build a school today in Nye County, if the school district  
14 wanted, or we had a new library to be built, we couldn't decide where  
15 to put it, so that it could be away from transportation routes.

16 This town here that we're in, this little road right  
17 through here, the one that you came over the hill on, and I wish you  
18 could go back to Las Vegas by going north and heading out to 95 and  
19 then going in, that route is one of the potentialities for that  
20 activity. And if it isn't that that's coming down the road here  
21 through the middle of this town, which by the way, is growing at 15 --  
22 12 to 15 percent growth rate, and that's 3,000 new people a year that's  
23 moving here, more or less. Unless you talk to Rich Thurlow (phonetic),  
24 and then it's a lot higher, but there's a lot of people here. In 10  
25 years, when the first truck is scheduled to come down the road, there's  
going to be 60,000 people living here in this valley, and

ANN Proportionally more in Amargosa Valley, the road that comes up from

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1 Inyo County and comes up, that is the next valley that will be  
2 developed. So we -- you have to put all this in context.

3 The issue of nuclear materials, and the physical nature of  
4 these nuclear materials is not well understood by the public. We out  
5 here, I could say the same thing perhaps for an urban area like Clark  
6 County, the general citizenry does not understand the physics of  
7 nuclear waste. And they never will in the sense that we are not those  
8 experts. So we're relying on folks like you and others to make this a  
9 zero risk proposition. We do not understand why it cannot be a zero  
10 risk proposition, and we challenge you and urge you, if you go forward,  
11 to bear in mind that for this campaign to be successful, if indeed the  
12 nation wants to solve its nuclear waste burden, and go forward with the  
13 next 20 to 30 years, and beyond that for the low-level waste cleanup  
14 issues, hauling nuclear waste in Nye County, which is what the plan is  
15 probably if the repository goes forward.

16 But in any case, the low-level waste campaign is here with  
17 us. If you want to make this successful, and you don't want to be  
18 having this kind of discussion 30 years from now, start out on the  
19 front end with a vigorous, and I would dare say expensive, but spend  
20 the money. Get the money and spend the money. A vigorous long-term  
21 real life, full-size testing program. I would suggest to you that the  
22 term source terms and computer codes -- don't say those to the general  
23 public, because if you want hear stories about how the federal  
24 government has done modeling upon which they base decisions, I could --  
25 we could give you some stories. Just a short example would be the  
modeling that DOE wants to do as a basis for its decisions and its  
ANN  
draft DIS having to do with groundwater behavior, as a -- from the --

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1 in the Death Valley hydro logic system, as it leaves Yucca Mountain,  
2 travels down gradient, under the town of Amargosa Valley, heads down to  
3 his county, goes across the border, and does whatever it does. That  
4 model -- or that groundwater modeling system that DOE wants to use has  
5 been criticized by other national peer review groups as being  
6 insufficiently based or a too sparse of data basis.

7 So I have to say for the citizens of the County, don't get  
8 yourselves into that. There's zero credibility for that DOE  
9 groundwater modeling system. Don't put yourself in that position.  
10 Spend the money. Get the money and spend the money for a full-scale  
11 cask testing, so that these folks can know that if that truck tips  
12 over -- bear in mind, under the scenarios that DOE has putting out,  
13 those trucks -- I'm just taking the Town of Beatty, those trucks will  
14 stop at a stop sign in Beatty and make a turn, at however thousands of  
15 times that it -- that -- for this shipping campaign, and there will be  
16 people eating lunch, maybe 120 feet away on one side, and if they're  
17 over to that little bar on the other side, they'll be drinking a cold  
18 beer on a spring day there maybe -- probably less than 55 feet from  
19 where those trucks are going to be stopping. You've got to bear that  
20 in mind. Because Highway 95 is our main street. It -- it's the  
21 lifeline of our communities from Pahrump, Amargosa to Beatty to  
22 Sacrabatis (phonetic) Flats, to Goldfield, which is in Esmeralda  
23 County, and Tonopah, and then however you get to Tonopah, from the  
24 last -- this is our main street, this is the lifeline of our County.

25 If that road is closed down, things stop. There's no  
detours. People in these towns have not asked for this burden. They  
don't seek it. They don't want it. But if it happens Nye County will

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1       probably be a good soldier and shoulder that burden, but we would ask  
2       you to let us -- help us do that with having an adequate data base on  
3       these issues here that gets people -- I mean there are people here that  
4       are going to tell you they -- we -- you know, they're going to say that  
5       modeling isn't good, that full-scale cask testing is the only way to  
6       make this happen. Help us assume this national burden with a data base  
7       that will give us some surety that the citizens, the kids that are  
8       going to school up in Beatty again, the -- where these trucks will be  
9       turning right after they make that corner where people will be having  
10      lunch, they're going to come down, and the main turnoff to the high  
11      school is right there, so these trucks are going to be breaking school  
12      buses there. The kids on the bus didn't ask for this. The parents  
13      didn't ask for it. So we ask you to help us make this a zero risk  
14      proposition.

15               MR. CAMERON: Thank you very much Les, for that very clear  
16      and very comprehensive statement of Nye County concerns. And I'd like  
17      to go out to others in the audience to see if there are some comments.

18      Okay. Let's start with Sally Devlin. And go ahead, Sally.

19               MS. DEVLIN: It's so nice to see so many people here. And  
20      I want to thank NRC for coming, and the DOE and the other agencies.  
21      It's always fun not only to see you, but to talk to you, because I do  
22      know you listen. And Les expressed it very succinctly just what I said  
23      to Bill before the meeting, everybody seems to have their little  
24      category or whatever, but the most important thing to me is on other  
25      transportation safety issues. And you very cautiously and very  
    correctly didn't mention Yucca Mountain as such, and that this -- these  
    administrators will be coming in and placed in the mountain, because that's

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1 a whole other subject. You're just doing the outer canisters and inner  
2 canisters.

3 Well, transportation is what I got into this in because six  
4 and a half years ago they were going -- the only railroad plan they had  
5 was to bring everything through Pahrump on the VanSchmidt Line down  
6 through Amargosa and then up to the test site. They have the second  
7 one now on the eastside through the flood plain. And I haven't heard  
8 you really say anything about the weather studies. We have extremes of  
9 everything, the 55 degree temperature variances. We have winds of 125  
10 miles per hour. We have blizzards. We have this, and we have  
11 tremendous seismic activity here. This doesn't seem to have been  
12 addressed at all.

13 The other thing that is most important, I mentioned to  
14 Bill, we have no medical facilities. And this stuff, if it came by  
15 rail or by truck through the Carlin (phonetic) one in particular,  
16 through Elko (phonetic), Carlin and so on on down through Vander --  
17 what have you, there isn't any medical facility. There's no medical  
18 facility in Pahrump. There's nothing in Nye County. We have a private  
19 hospital in Tonopah, 12 beds. And we have a whole 12 people trained in  
20 emergency preparedness. Now we're talking hundreds of miles between  
21 nothing.

22 Now the other thing is when that -- and he so cute, he's so  
23 decorous. I never am. I'm just bold. And that is these drivers,  
24 trains have to stop every 300 miles, I've read your transportation  
25 studies, and trucks so many hundred miles, and as he said, they  
would -- it would be stopping, but where do you stop in Nevada? You

ANNop at a casino or a brothel, to go to the bathroom, right? Now that

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1 isn't even considered, and perhaps it might not be important in other  
2 States, but it certainly is here. How dangerous are these stops? How  
3 long are they required to stop? And how do you monitor them? There's  
4 no monitoring. So this just safety issues are a fun thing.

5 The other thing is we've talked a little bit about numbers  
6 for Yucca Mountain One, and remember there's two repositories, and this  
7 is stated by DOE. And they want 10 to 11,000 casks for the one, double  
8 that that's 22,000 casks. Also, 10 percent would be classified DOD  
9 waste. Now I have stated for years, you cannot put classified waste in  
10 my mountain. Now we're talking about the canisters. We're talking  
11 about you're bringing them in, or you're talking about over packs, they  
12 may go back and forth, but these actual canisters, there are no designs  
13 for them. There are no outer things. The casks that you're talking  
14 about, the stainless steel casks, and we documented this at the last  
15 NRC meeting, have exploded, and just like it did in Japan, they did it  
16 in Michigan and Wisconsin. And NRC regulates them. This is dry  
17 storage again.

18 But I'm just saying that this stuff does go on. We have  
19 documented where they sent out a cask in Nebraska in the middle of a  
20 blizzard, and of course it blew over, and it cost 70,000 to clean up.  
21 These are all documented things. And of course NRC, as the regulators,  
22 don't seem to know it, because as far as I'm concerned DOE hides it.  
23 This happens, that haven't. But the most important thing is the DOD  
24 stuff. And that is who knows what. And I am sure that 14,000 metric  
25 tons have to be tested Mr. Sandia. We're delighted to meet you. We  
have a lot of reports from you that have been sent to us by Alan Benson  
(phonetic). And we also have reports from Argon (phonetic), and what

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1 we have found is the coatings, the outer coatings, and I'm going to let  
2 Grant talk about that, are absolutely unsatisfactory.

3 The other thing is when we talk about the actual movement  
4 of the trucks, in my reports from INEEL, they go 10 to 30 miles an  
5 hour. Now we have non-existent roads here, they're -- 95, our  
6 interstate, that Les mentioned is a nine hazard; 160 is a seven hazard,  
7 and of course, we're four lanes now. We're so happy. But the minute  
8 that these trucks would leave the Pahrump border, do they get half  
9 lighter when they go the other 30 miles up to the test site, or up to  
10 Yucca Mountain? Because that is -- will be a single road. And our  
11 roads are a mess, because of whether, because of this, because of that.

12 And one other terrible word, of course, is flood. And we do have  
13 floods here. So all of the climatic things, all of the seismic things,  
14 all of the rest of them are just ignored, and the numbers, 22,000 is a  
15 lot of numbers. And they predicted, and this was from the EPA meeting  
16 that we recently had, that one out of 100 will break open. That's a  
17 very poor record. So there's a lot more, and I'll let others talk.  
18 Thank you, again for coming. Thank you.

19 MR. CAMERON: Okay. Thank you, Sally, for your continued  
20 attention to this issue. Anybody over here have a comment or a  
21 question? Yes, sir? And if you could just state your name, and  
22 affiliation for the transcript.

23 MR. BEIRLE: My name is Kenton Beirle, and I'm here  
24 representing primarily myself, as a resident of Pahrump. I'm familiar  
25 with some of the early stages of your testing program as conducted by  
Sandia National Labs, because for many years I was employed at the test  
ANNte in a support agency status for the laboratory. So I do have some

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1 knowledge about how your initial safety program began and things that  
2 went into it, and some of the results thereof. I'm a little bit  
3 concerned with a statement, I believe that Bob made, Mr. Robert Lewis,  
4 made here a little bit ago. Did you say there were 1,300  
5 transportation performances?

6 MR. LEWIS: Yes.

7 MR. BEIRLE: And you had a -- you had eight accidents  
8 during those. Was this on public roads? Where these on public roads,  
9 or?

10 MR. LEWIS: Both road -- both roads and rail.

11 MR. BEIRLE: Okay. I just did a little bit of fourth grade  
12 mathematics that comes out to an accident per 164 and a half  
13 transportation performances. I'm a little confused about that.  
14 Because if I were to call Greyhound, or Amtrak, or any national  
15 airlines to schedule a flight from say here to New York City, and I  
16 found out that they had an accident at ratio of 164 transportation  
17 performances, it would scare the hell out of me. So I'm a little -- I  
18 question your figures there. That's seems a very, very high percentage  
19 of accidents for --

20 MR. CAMERON: Can you --

21 MR. BEIRLE: -- a transportation issue.

22 MR. CAMERON: Can you try to put that into context for this  
23 gentleman, Rob?

24 MR. LEWIS: Sure. I think I'll start off, I think Earl  
25 might want to add a little bit to this. The 1,300 shipments that were  
made, I'm only talking about the ones that were in NRC certified  
and packages now, so it's only commercial shipments.

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1 MR. CAMERON: 1,300?

2 MR. LEWIS: 1,300 shipments, yeah, in the last 20 or so  
3 years. And there was, as I said, there was eight traffic accidents in  
4 those shipments. Four of those accidents involved casks that were  
5 being returned after the shipment. They did not have any spent fuel in  
6 them. The four that did have spent fuel in them, the accidents that  
7 occurred resulted in no release, and I think the accidents that -- the  
8 meaning of accidents is an important factor here, because we count any  
9 little event as an accident in those cases. Again, with that I'll turn  
10 it over to Earl.

11 MR. CAMERON: And let me -- let's go to Earl to get some  
12 more information for you, and Rob mentioned counting any little thing  
13 as an accident. Earl, I don't know if you can use this gentleman's  
14 reference to Greyhound and Amtrak to give -- to sort of a -- explain  
15 the analogy between what we call an accident in -- you know where I'm  
16 going? All right. Go ahead.

17 MR. EASTON: Yeah, I think when you try to account for  
18 accident safety, it's very important on what your definition of  
19 accident is. Now at the NRC we don't, as our mandate, go around and  
20 count accidents. We rely on reported accidents, and those are either  
21 reported under the regulations of the Department of Transportation, the  
22 Department of Energy, in some cases, or those that are required --  
23 there are some that are required to be reported to the NRC. But each  
24 type of agency has a different reporting requirement. DOT for example  
25 has a requirement that if you exceed a certain amount of property  
damage you have to report it, so that could be a fender bender. If  
there's any suspected release, that has to be reported. So there's a

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1 grey -- there's a grey area in how accidents are reported, number one.

2 And the type of accidents that we had here, with the eight accidents,  
3 there were several in the category that just exceeded property damage.

4 There was one in 1971 where a truck cask slide off the road into a  
5 ditch, unfortunately the driver was killed. It was a transportation  
6 type accident. It was like a traffic accident. The cask was virtually  
7 undamaged. Also because of the few number -- relatively few numbers of  
8 transportation accidents involving spent fuel casks, relatively few  
9 number of shipments, 1,300 with basically no release. It's not a  
10 particularly large database. So in trying to do some of these studies,  
11 we have to turn to data bases of similar types of trucks, similar size  
12 trucks, et cetera, et cetera. So I hope that in part --

13 MR. BEIRLE: What I'm bringing about here is a little bit  
14 of an understanding that Mr. Bradshaw just brought up, when you're  
15 talking to the public, when you get down to the raw numbers, that's  
16 what they will see. That's what I see. And those numbers, to me,  
17 didn't sound very good. You know, an accident, so it's a little  
18 fender bender, out of every 164 trucks, that is a very high ratio.  
19 That's what I'm saying that the public is going to perceive. Any maybe  
20 it's only a fender bender, and it will not involve necessarily the  
21 safety of the cask or anything like that, but nevertheless, it's an  
22 accident. And if that's the ratio of accidents that you're going to  
23 put out to the public, they aren't going to see it -- they're aren't  
24 going to want to see it come through this State or this County.

25 MR. CAMERON: Okay.

MR. BEIRLE: And especially, I don't, because I have a  
ANN little bit of a more of a little concern here, I live in the north end

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1 of the valley, which is squeezed in by the result of two mountain  
2 ranges, to a very narrow little pass. And if you go by either truck or  
3 by rail, you are going to go within a quarter of a mile by truck, up to  
4 one mile by rail, from my house. Now the radiation that is put off by  
5 the spent fuel packages, like Mr. Bradshaw pointed out, there's  
6 argument going on between the levels of radiation acceptable, and they  
7 haven't arrived at the base number for that. And the words are put out  
8 that it's equivalent of an x-ray, a tooth x-ray, well that might be  
9 very nice, but is that per truck that goes by my house? I don't get a  
10 tooth x-ray every day, or two or three times a day, or ten times a day.  
11 That needs to be explained.

12 Also, if you have an accident, what is the radiation level  
13 at that particular place then? What is the expected level of radiation  
14 that could be put out? What if it happens say right down the road from  
15 me? These are very real concerns for me because the other day a  
16 flatbed trailer hauling cargo lost its cargo 1,400 feet from my house.

17 In other words, at the closet point of the highway passes by my house,  
18 his cargo slid from his truck. Now what if that would have been a cask  
19 involved in an accident? How long is the cask going to lay there?  
20 What is the level of radiation? Those are things that I think we need  
21 to bring down to a layman's term, if you will. I'm familiar with your  
22 scientific terms involved in the nuclear processes and whatnot, but we  
23 need to get it down to the layman terms, the public's terms.

24 MR. CAMERON: Okay. Thank you very much, sir --

25 MR. BEIRLE: Thank you.

MR. CAMERON: -- for pointing out the importance of clearly  
explaining this. And I know that Rob wants to say something, but you

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1 also might, Rob, if we have the information on it, the issue of a cask  
2 traveling on a truck or a train, passing someone's house, what is the  
3 radiation emitted?

4 MR. LEWIS: First though regarding your last point, the --  
5 one of the products of this study we're doing, and also of the study  
6 that we're trying to publish next year, is a technical report for the  
7 engineers and technical community. But there's another product, and  
8 it's a document for public -- a plain English version of all these  
9 reports. And we hope to get that to you in time for the next series of  
10 workshops.

11 And the other issue, we do look at both the safety of the  
12 shipment during routine transportation, and the safety of the shipment  
13 during accidents. Now the study we're talking about today is only what  
14 happens after the accident. But we do have limits in our regulations,  
15 and they come from the DOT, Department of Transportation's Regulations  
16 that set the radiation level on the outside of packages. And we have  
17 established those limits at levels that provide for safety during  
18 routine transportation. And how do we show this? We show this through  
19 our history of -- and these limits, I should say don't just apply to  
20 spent fuel shipments, they're for all radioactive materials packages.  
21 There's probably three to five million of radioactive materials every  
22 year. And the limits we set for normal transportation apply to all  
23 those packages. And through the studies and through the history we've  
24 accumulated, we do -- we determine the environmental and the safety  
25 impacts of allowing those radiation levels during the normal  
transportation.

ANN Bill wants to add a point.

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1           MR. BRACH: There are a couple points I want to make and  
2 first in Les's earlier comments with regard to a concern that the cask  
3 design really be safe and as robust as possible, I believe that's also  
4 inherit Sally Devlin's comments, as well as Mr. Beirle's questions with  
5 regard to accident considerations. I'd like to step back with regard  
6 to the cask design and its robustness, accidents do happen, that's been  
7 the thrust of the last decision with regard to the 1,300 shipments in  
8 the last 20 years of commercial spent fuel. Four accidents involving  
9 transport of casks with spent fuel, which there were no releases. The  
10 issue that we're looking at in our study, and we're looking very much  
11 for your input now, I want to say we very much, I think, share the  
12 common objective of these casks to be safe, the robustly design -- the  
13 designs will be robust, so that if an accident were to occur as Mr.  
14 Beirle had just discussed that happened just recently, that if that had  
15 been a transport of spent fuel, and had that been a spent fuel cask  
16 that had left the truck bed that what we're looking to do in our study  
17 is to go through the analysis, and as both Dr. Massey and Rob had  
18 mentioned, the consideration of physical testings that would be  
19 necessary so that if that accident were to occur with spent fuel or  
20 spent fuel canister, that we would all feel very confident that the  
21 cask design would be robust and strong enough to have -- to prevent any  
22 release of material.

23           Yes, there'd be some corrective actions needed to upright  
24 and pick up the cask. Put it back onto another form of conveyance, and  
25 move it on. But yet there would be no release of nuclear material --  
that -- or radiation. That clearly is a goal of what we're looking for  
ANN our study. Dr. Massey, I believe has the very first bullet on the

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1       overhead is looking at accident likelihoods, accident rates. And  
2       that's your question with regard to the analogy of whether you're  
3       calling Greyhound with regard to their safety record, or their accident  
4       rates. But we want to be sure that the information that we have, as  
5       we're going forward, is current and as broad as we could make it from  
6       the standpoint of assuring that the data we have is representative of  
7       accident conditions.

8               Will there be a zero risk? We all would like to have a  
9       zero risk, but as you point out, accidents happen, and we want to be  
10      sure that our consideration of this study takes into account accidents  
11      that might be likely, so -- or might be possible, so that the design of  
12      that cask would prevent the release of radiation -- or any radioactive  
13      material or radiation from that accident. So I want to stress to you  
14      what we're looking to hear from you today, and I clearly heard Mr. --  
15      in Les's earlier comments with regard to credibility of modeling versus  
16      the need for testing.

17             Both in Dr. Massey's brief presentation and Rob's  
18      presentation had mentioned that we see that physical testing is clearly  
19      an element that we feel is going to be needed. The extent, the type of  
20      physical testing, clearly interested in your views. Ms. Bradshaw, you  
21      mentioned full-scale testing, I'm taking notes, as well the meeting's  
22      being transcribed. We have that. But that all is in the context of  
23      assuring and -- that the cask design will be such that if an accident  
24      were to occur that we would like to have, and want to have, and need to  
25      have the confidence that the cask will perform as designed or intended,  
    in that accident condition, so. What to add that because I believe  
    ANNat's very fundamental, and I think that it's a common vein in the

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1        comments we've heard so far this morning. Thank you.

2                MR. CAMERON: Okay. And these table mics do work.

3                MR. BRACH: Oh, they do.

4                MR. CAMERON: They just need to be turned on. That would  
5 help.

6                MR. BRACH: Okay.

7                MR. CAMERON: Charles, do you have anything to add on the  
8 radiation coming off the cask during normal conditions?

9                UNIDENTIFIED SPEAKER: That one doesn't work.

10               UNIDENTIFIED SPEAKER: This one doesn't either?

11               UNIDENTIFIED SPEAKER: Do you want to do that, Charles?

12               DR. MASSEY: I'll let NRC answer that.

13               MR. CAMERON: Okay. And I would just ask the NRC people to  
14 just try to be as concise as possible so we can hear from the people  
15 from Nye County and surrounding counties. Go ahead, Earl.

16               MR. EASTON: Yeah. Sandia's actually done a lot of studies  
17 about the radiation levels off various casks. I've been told that that  
18 will be made available to anyone who wanted that to contact us. Also,  
19 let me throw in one question. We often have a hard time explaining  
20 risk in other than technical terms, because he tend to be technicians.

21        Any ideas on how me might express risk in a more meaningful way, I  
22 think is something we'd be very interested in.

23               MR. CAMERON: Okay. Thank you. We're going to go for a  
24 final clarification on some of the points raised by the last gentleman  
25 to Janet Cotra from the NRC staff. And then we're going to go to Grant  
and others. Go ahead.

ANN

MS. COTRA: Thank you, Chip. Rob, I just wanted to make

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1       sure that the impression wasn't left that one out of every 163 trucks  
2       that come into Nye County is going to have an accident. I don't think  
3       you meant to say that. I think it's important to point out for people  
4       here, and this is part of the learning curve that NRC is on, and  
5       expressing its technical information in a way that people can  
6       understand is that those data that you put up there weren't corrected  
7       for the length of the shipment.

8               So I think if you express them in terms of per mile  
9       accident rate -- now, I'm not an expert in this area, I'm not  
10      pretending to be, but there are plenty of people in this room who are,  
11      I think, or I would appreciate it if one of them could confirm what my  
12      instinct is, is that that accident rate is probably lower than the  
13      national average on a per mile basis. And I certainly don't want  
14      people to think that one out of every 163 trucks that drives by their  
15      school or their home is going to have even a fender bender carrying one  
16      of these casks. So I would like one of us to clarify that.

17             MR. CAMERON: Perhaps that was good for now. Thank you for  
18      doing that. Grant, you had your hand up earlier. Why don't you go  
19      ahead and then we'll go to Michael.

20             MR. HUDLOW: I'm Grant Hudlow, and I'm a member of the  
21      NRAMP group, which is a study group with the UNLV it's funded by DOE on  
22      the test site project. And like Les says, we don't like to allow you  
23      to compartmentalize your projects. We've learned a great deal from the  
24      operation of the test site itself about what is likely to happen to  
25      Yucca Mountain, transportation, and so forth.

              And before I get started into some of that stuff, I'd like  
ANN, if I can, pick on the three of you. You've made some terrible

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1 communication mistakes and under the idea that you would like  
2 suggestions on how to get the public involved, then I'd like to  
3 critique your talks. When you use words like safe, valid,  
4 substantially strong design, very educated judgments, what the public  
5 hears is that you're right and the public's wrong. And that is not  
6 what you intend. I can tell you for sure that you do not want to do  
7 that. It drives people away. It stops the communication. That's a  
8 terrible thing to have happen. I make the same mistakes because I'm a  
9 strong personality, and I want to project that. And so people hear me  
10 as saying things that are carved in stone, and I don't intend that at  
11 all, but that's probably why I'm so sensitive to hearing you say that,  
12 because I get busted for it all the time.

13 I'm also would like to complement you on your candor on  
14 admitting that there have been nuclear accidents. The story that we've  
15 heard up to now is that there has never been a nuclear accident. In  
16 fact we had a truck driver, who drives nuclear trucks, when we  
17 suggested that there had been accidents, was going to come across the  
18 table and punch us out. Fortunately, there was somebody else there  
19 that told him to calm down, and quit it. We know that there are  
20 260,000 over the last 10 years chemical truck accidents. Only a few of  
21 those were nightmares. One of them destroyed the Sacramento River.  
22 Others have blown up towns. All kinds of stuff.

23 So when we talk about accidents with nuclear materials on  
24 board, that's what we hear, that you're going to destroy the river,  
25 you're going to take out a town, whatever. And this is a very serious  
matter to all of us. And sure, only one accident in a great while will  
make out a town or a river, but that's going to happen, and we want you

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1 to be sure that the materials that you're containing this stuff with  
2 are strong enough to prevent that.

3 I would like to chide Sandia. The last time I talked to  
4 Sandia about containing nuclear material, they didn't know about the  
5 Nelson limits. And the Nelson limits predicted in that project that  
6 the material was going to puncture the cask within two to six months.  
7 And when I asked the DOE to find out the data base when we started  
8 talking about containing this material. It's not available. We've got  
9 everything that Sandia could find, and nothing was mentioned on that,  
10 so apparently that was too embarrassing, and it was hidden, and that's  
11 unfortunate, because you're making the same mistake all over again.  
12 Anytime you use stainless steel around this kind of material two things  
13 happen, the nickel evaporates and the chromium gets punctured within  
14 two to six months. So they may be the outer cask on this. Maybe the  
15 outer stainless steel will be safe. Maybe one of the internal rings  
16 will be safe. It's hard to tell, without some testing.

17 But I'll guarantee you that those inner ones are going to  
18 puncture within two to six months, and that's totally insane to contain  
19 this stuff with stainless steel. You need to get somebody that knows  
20 the Nelson limits, knows some metallurgy, and get that straightened out  
21 once and for all. And put it in the data base so the next young  
22 engineer comes along doesn't make the same mistake.

23 MR. CAMERON: And Grant, I'll have to ask you to just wrap  
24 up if you could. If you have a final point for us that you would  
25 like --

MR. HUDLOW: Yeah. I'd like to mention that I met Sarah  
earlier, and I depend on her to -- for the NRC to get into these Nelson

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1 limits, this metallurgy, she has the background to understand it. And  
2 to make sure that the MNO's and the DOE take care of this problem, so  
3 it doesn't -- we don't have to keep coming up with it at every meeting.

4 MR. CAMERON: Okay. Thank you very much, Grant, for the  
5 advice on communications and the Nelson limits. And we do have people  
6 working on that. Michael Dorame, Inyo County.

7 MR. DORAME: I want to thank everybody for taking the time  
8 to be here for us. We're also here for you. Neighbors, thank you very  
9 much for holding this. Les, you were so astute in your presentation, I  
10 don't know how anybody can follow that one. But very briefly here.  
11 Thank you, Chip. You mentioned 1,300 shipments, and I just wondered  
12 over the past 20 years or so, where did these shipments initiate and  
13 where were they going to? And how many miles were involved? Where  
14 were the accidents? What were the causes of the accidents? Were they  
15 preventable, non-preventable? When we find that out, what was the  
16 location of -- if there were any emergency response teams, how were  
17 they equipped and/or prepared to deal with these accidents? What was  
18 the resulting factors of anything that was learned from these  
19 accidents? And I think the bottom line here is how do we get to zero  
20 effects? We spend billions of dollars crashing on Mars and not  
21 learning a thing from that one except that we can't do this on the  
22 cheap. So I think the message about appropriating and allocating the  
23 funding that's necessary -- put this to the top, the front burner, in  
24 terms of public safety. When this nation engages itself to be number  
25 one at anything, we never, ever go on the cheap. And we educate  
ourselves either through propaganda or through legitimate information  
AND educate everyone that this is a very necessary endeavor, should we

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1 transport spent fuel rods.

2 We have had a series of accidents in our terrain, in our  
3 region. And the gentleman that mention the high mountain passes, we  
4 recently had one in May, because the driver had no knowledge of the  
5 terrain. He had no knowledge that when he came across Towns Pass,  
6 which is west of here in Death Valley National Park, he was carrying a  
7 hazardous material, but did not realize that he didn't know how fast  
8 that grade dropped, and for how many miles. And when he got to  
9 Immigrant Pass, he had lost it already, and the truck disintegrated  
10 upon impact, and they had waste all over the place. Now had that been  
11 nuclear waste, I don't think we would have had any survivors to talk  
12 about it. There was some -- I mean it just disintegrated, it was the  
13 velocity of that. It was a violent collision. So these are the kind  
14 of things that concern people like myself.

15 The weather is going to play a big part, and that's where  
16 we start looking at zero effects. I would expect, having served in the  
17 military a couple of terms, that we would have a discipline, a national  
18 discipline to monitor how we do business. And I realize how a lot of  
19 these shipments are being transported. There's a lot of issue with the  
20 knowledge of the drivers and how to respond to emergencies on the road.

21 A lot of this is contractual, because why? We're doing it on the  
22 cheap. And there maybe some requirements that is go out to bid, but  
23 then again I realize that the Federal Government can do what the  
24 Federal Government feels is best for the people. Which means even if  
25 we have to in getting to zero effects, create some type of system --  
we've got GPS, we can regimentalize everything to a point, like the  
military, so that we can keep track of every single shipment. Thereby

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1 reducing the amount of public skepticism and suspicion of what is going  
2 on, and enhancing the credibility of the entire program. You involve  
3 the public and what happens next is that the public becomes that  
4 watchdog. The public needs to know every bit of it.

5 This thing about how many shipments are coming through? We  
6 have no idea. Who's keeping track? We have no idea. Where are they  
7 coming from? Where are they going? How many miles has that guy  
8 driven? We have no idea. There's got to be a record for every  
9 shipment. I urge everyone who is responsible for the success of any  
10 type of transportation program to ensure that that becomes part of that  
11 program.

12 Now we the public out here realizing that, Oh, yeah, we can  
13 trust you guys to do the right thing. Well, we have a vested interest  
14 in this nation in various -- along various routes. It's called  
15 property values. I'm sure you all are -- have property that you value.

16 What happens to the value of my property or anybody else's property  
17 when there's a realization that we've got shipments coming through here  
18 with a potential for an accident? It touches us all dependent on where  
19 you're going to be transporting that stuff. I have a similar issue  
20 with the Owens Lake. It's dry.

21 I have discovered, just very recently now, I -- because I  
22 reside in Lone Pine, that some of our property values are being  
23 affected by that dust now. Now we can't go to lending institutions to  
24 expand, say our house, add a room on or something. These kind of  
25 things occur. This likely could happen. And bottom line, please don't  
use this terminology again, this is not quote, unquote routine

ANN transportation. This -- you raise that bar to a higher level when you

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1 talk about this. And I thank you so much neighbors. Thank you, Chip.

2 MR. CAMERON: Thank you, Michael. Before we -- you guys  
3 might have something to say. There were many questions and  
4 recommendations there. I guess that the only thing that I would single  
5 out at this point is the accident that Michael was talking about, about  
6 the truck driver coming down through Immigrant Pass. Could you just  
7 talk a little bit about the types of accidents that the study would  
8 look at, such as that, to -- that -- and why you're looking at those  
9 accidents? To see what would happen to a spent fuel cask. And then we  
10 really do need to see if we can get other people who haven't talked yet  
11 on the record. Charles?

12 DR. MASSEY: Yes. One of the things that we will be  
13 looking at in the study is a revised new look at accident likelihoods  
14 and the types of accidents that take place, like incidences of trucks  
15 going through canyon passes. You know the speeds, the greater speeds,  
16 especially going downhill that you might see. Carrying heavier loads  
17 as the trucks get bigger. There's been concern that these packages,  
18 because they are heavyweight shipments, you know, what's the impact of  
19 those. And plus other heavy hauls that maybe on collocated on the same  
20 highway. So those are the sort of things that we'll be going into much  
21 more detail in this new study is looking at the whole new shipping  
22 operations, especially with more tandem trailers. Those sort of  
23 things. How do those new transportation safety -- or transportation  
24 systems, how do those affect potentially safety of our spent fuel  
25 packages?

I'd like to go back, very quickly to these eight accidents.

ANNf we look at shipment miles, it's roughly a million, it's a little

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1 less than that, but it's roughly a million shipment miles involving a  
2 loaded spent fuel cask. Four of those eight accidents actually had  
3 cask containing spent fuel, so that's roughly one per 250,000 shipment  
4 miles. Now that's some type of event that we classified as an  
5 accident. I believe one of them, correct me Earl or Rick, I think it  
6 was sort of a flat tire, where it sort of skidded off and caused a  
7 little bit of damage. Okay.

8 Now in all those four accidents, there was no damage to the  
9 cask resulting in any type of release of radioactive material. Now  
10 what we do for transportation risk assessment purposes, when we go  
11 through these scenarios, you'll say, "Okay, now let's say we just  
12 assume that one in every 250,000 miles we have some type of event that  
13 could lead us into circumstances where we may have something else  
14 happen." So what we would assume is that instead of the cask just  
15 going off the road, and ending up in the ditch, and nothing happening  
16 to it, say, "Well, we know we never had this happen," but let's say it  
17 did happen to run into a gasoline storage tank. What's the odds of  
18 that? We'll assign some probability.

19 Say, "Okay now we could have a fire as a result. What's  
20 the likelihood of how long that fire would be, and what's the  
21 temperature?" So you go through a very rigorous and detailed analysis  
22 of other things that could happen that people could postulate that, you  
23 know, maybe very reasonable. And we want to see what's the  
24 consequences of those type of environments on the package.

25 So it's not a -- it may seem, if you look at the numbers,  
eight per 1,300, may on its face seem kind of high, but if you look at  
the shipment miles and the fact that one per 250,000 miles we just had

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1 some type of event that we're labeling an accident, but that there was  
2 no impacts or consequences as a result, we believe that does  
3 demonstrate the safety of the packages.

4 MR. CAMERON: Okay. And thanks for putting that into  
5 perspective. And I think we should all -- also remember Michael's last  
6 point about routine transportation, too. Rob, do you have something  
7 quickly to add?

8 MR. LEWIS: On that point, by no means did I mean to imply  
9 that spent fuel shipments are a routine matter to us. What I meant by  
10 using the term routine transport was it was a shipment that occurred  
11 that did not involve a transportation accident. Now spent fuel is a  
12 very hazardous material. We know that. It's the most regulated  
13 substance that is shipped. And that's reflective that it is by no  
14 means a routine matter to us.

15 MR. CAMERON: Okay. We're going to go over here for a  
16 comment. And then we'll take this gentleman, and Jim Williams for Nye  
17 County, might want to say something. Yes, ma'am? If you could just  
18 give your name for the record.

19 MS. GANGER: My name is Alice Ganger. And I'm just a very  
20 concerned citizen. I wish I had more -- had done more homework about  
21 the speculation that these nuclear facilities are going to recycle this  
22 nuclear waste to be used for something else?

23 UNIDENTIFIED SPEAKER: No, ma'am.

24 MS. GANGER: No?

25 UNIDENTIFIED SPEAKER: No.

MR. BRACH: There is within the U.S. no reprocessing of  
spent nuclear fuel to reuse the material. The materials that we're

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1 talking about being transported to -- eventually to the repository  
2 would be the spent nuclear fuel used at commercial nuclear reactors, as  
3 well as other Department of Energy activities, but it would not be  
4 material, under the commercial side, that would be reprocessed material  
5 or recycled material. It would be the nuclear material that once it's  
6 used to the extent of its usability, if you will, at a nuclear power  
7 plant, it would then be packaged into a canister, and the purpose of  
8 our study we're talking about today would the transportation canisters  
9 that would be used to transport that spent nuclear fuel from the power  
10 reactor to the repository, to a disposal facility, or a storage  
11 facility. There's not -- it does not have a recycle or reprocessing  
12 aspect to it.

13 MS. GANGER: Because the sure would save a lot of these  
14 meetings and worries by all concerned United States citizens on the  
15 shipping.

16 My other thought is, I don't know where you people live,  
17 but how would you like all these trucks going down your 160, three  
18 miles from your home? I don't know, I think there's some  
19 transportation people here, I kind of looking at the routes, if they're  
20 talking about building a railroad, why -- Nevada is so desolate, why  
21 don't they build it out in the boonies where they don't have  
22 civilization? Then we don't have to worry as much.

23 MR. CAMERON: Okay.

24 MS. GANGER: That's fine. MR. CAMERON: Thank you.  
25 Thank you for those concerns. Let's go to this gentleman here, and  
then see what Jim has to add for us. Yes, sir? MR. GRAY: I'm Larry  
ANNAY with the Town Board of Beatty. I have a couple personal concerns,

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1 and something about your transportation hitting on what she had just  
2 said. There is no one in the Town of Beatty that's more than a half  
3 mile from U.S. 95. The town is centered on U.S. 95. So any other  
4 transportation coming through that area, it's going by everybody's  
5 home. And what I had heard before, someone asked, what is the amount  
6 of radiation coming from these casks, and you have not given an answer  
7 of how much radiation is ambient around these casks during  
8 transportation.

9 The other question was, I notice, I see a lot of  
10 transportation right now of high-level plutonium, or something that  
11 maybe weapons, but there is material running down 95 with high-level  
12 security. What is your security for these trucks? The way -- my  
13 question is, is there -- you have security at the place, or at -- now  
14 at the nuclear plant. You have security at Yucca Mountain. Are these  
15 trucks going to be running with security? Because right now we live in  
16 times where terrorists could do something. We didn't think they'd do  
17 anything to a federal building, but they blew it up. What's to stop  
18 them with this where it's out in the middle of nowhere?

19 MR. CAMERON: All right. Let's give an answer to the  
20 radiation question, and if someone could simply address the security  
21 angle, too.

22 UNIDENTIFIED SPEAKER: We'll ask Earl on the second, and  
23 Rob on the first.

24 MR. CAMERON: All right.

25 MR. LEWIS: The limit -- the radiation level that's allowed  
on a cask is 10 millirems per hour, two meters away from the cask. Now  
ANS you increase the distance, that amount drops off, but that's the

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1 standard that's in the regulation, 10 millirems per hour, two meters  
2 from the cask.

3 MR. CAMERON: And security. Let's go to Earl Easton.

4 MR. EASTON: Also some of the studies have -- the one  
5 that's coming out in February will give more detail on the radiation  
6 limits that are associated with these, so you might want to look for  
7 that, and comment on that.

8 Physical protection for spent fuel shipments regulated by  
9 the Nuclear Regulatory Commission, we have several protections in  
10 place. We require armed escorts through any urban area. Unarmed  
11 escorts through non-urban areas. There's a requirement that all trucks  
12 call in every two hours. It has to be in constant communication  
13 capability to contact headquarters, their shipping headquarters. We  
14 check to make sure that the response time for law enforcement agencies  
15 at any point along the way is within the -- a quick time. Typically,  
16 we aim for 15 minutes. We have truck immobilization devices, where if  
17 a truck is under threat, it can be immobilized so that no one could  
18 drive that truck any further. We've done several studies about the  
19 susceptibility of these casks. The various terrorized weapons, we're  
20 in the process of looking at that in further detail. All of these  
21 regulations can be found in 10 CFR, Part 73, if you want to follow up  
22 in more detail.

23 MR. CAMERON: Okay. And thank you. And I would apologize  
24 to everybody that we don't have more time today, and that the next time  
25 we come back, we'll just schedule more time so that we don't have to  
miss anything here. And I would also encourage you to -- after we're  
done to please talk to the NRC staff that are here to amplify on some

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1 of those concerns. But it think we should hear from Jim Williams.  
2 Jim. Okay. Go ahead. And Jim, tell us, you know, who you are, and  
3 what you're doing.

4 MR. WILLIAMS: Well, I'm Jim Williams and I have provided  
5 assistance to Les and his program in Nye County for several years. And  
6 I wanted to sort of take the opportunity of your much appreciated visit  
7 to a -- sort of to go over a few of these perspectives of the site  
8 county on this program. We do understand that your study is focused on  
9 the performance of a generic cask under extreme accident conditions.  
10 And that it doesn't reference a particular transportation program, or  
11 even actually a particular cask that would be used in a particular  
12 program. But as you can hear from comments by Nye County people, it's  
13 very difficult to separate sort of the abstract of your study from the  
14 particulars of an actual potential transportation campaign. Nye County  
15 sees itself at the bottom end of the funnel for the entire inventory of  
16 high-level waste nationwide. And all the low-level waste that needs to  
17 be disposed from the DOE complex, which is going to -- into Yes. And  
18 this is on top of 50 years of nuclear weapons testing, all in this one  
19 community. And so that does make Nye County's position -- this  
20 transfer does make Nye County's position very unique in the whole  
21 history of transportation of nuclear materials in this country. And it  
22 also adds in Nye County be concerned about groundwater effects, in  
23 which underground testing residues are being commingled in groundwater  
24 systems that are aimed to Amargosa Valley and further south.

25 It also -- the transportation constitutes a kind of a  
threat to future activities, regardless of the probabilities that --

Andr concerned here there's a threat of what this could mean in the

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1 future to activity along U.S. 95 to people's opportunities for economic  
2 futures that they're trying to forge in these different communities and  
3 so forth. So that threat is part of this equation.

4 Now Nye County has developed a number of notions of what a  
5 best practice transportation campaign for high-level waste should be.  
6 It involves rail, dedicated rail, dedicated equipment, escorting  
7 canistered fuel, a whole series of things like that. But regardless, I  
8 think it's the Nye County -- as I understand it, it's the Nye County  
9 position that whatever that campaign is cross-country, it should not be  
10 less safe in -- as it enters Nevada and the site county. So that the  
11 notion that this could be shipped across the country and by dedicated  
12 train, downloaded and put on heavy-haul trucks, and -- which would then  
13 go through Tonopah, Goldfield, Beatty, Amargosa Valley is pretty  
14 objectionable in Nye County. In regard to that, and this was a topic  
15 that was brought up yesterday, but I think that we would reenforce the  
16 notion that the study should consider the different combinations of  
17 cask and mode.

18 UNIDENTIFIED SPEAKER: Uh-huh.

19 MR. WILLIAMS: The fact that a legal weight truck cask of  
20 uncanistered spent fuel could be shipped into this County by legal  
21 weight truck, or by heavy haul truck, or unloaded onto a rail car, all  
22 those different combinations and permutations are in the potentials out  
23 there, and we hope that they can be studied.

24 On the routing, and I'm trying to be quick here Chip,  
25 there's -- we are really concerned about -- routing is very difficult  
and we fully understand that this is an aspect that is more properly  
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delayed to DOT than DOE, and that NRC has certain regulations that

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1       regard this, and so forth. But we're concerned about a least risk  
2       routing system wide, with mitigation for the site county, particular  
3       for their emergency response capability to radiation related accidents.

4       Which in the very low ebb in Nye County right now. And you've heard  
5       before the concern about the impacts on what Nye County considers its  
6       main street, U.S. 95, coming south from Tonopah to Reno, or down to  
7       Vegas.

8               The other -- last point I'd like to make is that there is a  
9       concern about the radioactive content of the fuel that could be  
10      shipped. I mean there is -- utilities are using more highly enriched  
11      fuel, longer burn up, and the waste acceptance criteria allow that fuel  
12      to be shipped, or allow the possibility of it to be shipped as young as  
13      five years out of the reactor. Nye County has made a position that we  
14      want to find a way to be -- have a legitimate voice in the waste  
15      acceptance process, by which a legitimate local voice, an effective  
16      local voice, in the whole process by which waste is accepted in this  
17      County, if it is accepted. And so don't expect your study to solve  
18      that for us, but I did want you to understand that this local  
19      government, that is the target for all of this, is concerned about its  
20      role in the sequencing and scheduling of what may come here.

21             MR. CAMERON: Thank you very much, Jim, for those valuable  
22      comments.

23             UNIDENTIFIED SPEAKER: We'd also like to have a word here  
24      in this corner, out here, and one of the members of the --

25             MR. CAMERON: You got our attention. Go ahead.

              UNIDENTIFIED SPEAKER: We have about a minute left, but I  
              have this gentleman who interviews for the local television station,

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1 and you all know him, he's having a mic and he's usually with a mic.  
2 So I'd like him to say hello and just to welcome you to Pahrump, and  
3 since we're on transportation the initial word's tire occur to me that  
4 the T relates to timeliness that we had 2003 brought up here, that  
5 things are happening, as we know, day by day in relation to what is  
6 being filled up on low level I guess, as Sally calls it. And the I  
7 would mean that inclusive, as an older person who'd about to be a  
8 10-decade man, I know that kids in our town board in Pahrump has been  
9 honored by having some kids and they've been the most constructive  
10 sessions that we've had. So if the study people were to include these  
11 kids, I think they would find that it might be helpful to them as in  
12 outreach all over, and then the R for the relatedness, the original  
13 basis of all this inquiry for Yucca was 10,000 years, and casks up to  
14 that standard, and so forth. Nothing has been touched upon that I've  
15 heard in that regard.

16 So may I ask for the gentleman whose voice is the voice of  
17 the community, the voice of the valley here to say at least hello and  
18 to add any comment, final word, bottom line, so forth, please?

19 UNIDENTIFIED AUDIENCE SPEAKER: Hello, and that's my bottom  
20 line.

21 UNIDENTIFIED SPEAKER: Thank you, very much.

22 MR. CAMERON: Well, thank you. Thank both of you. I think  
23 we're just about out of time here, and I want to make sure that Bill  
24 Brach, who is the head of the office, closes this off for us today.  
25 And the information that you offered, and the questions were excellent,  
and will help the NRC staff I believe. Bill.

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MR. BRACH: Okay. One, not to run overtime, but I do want

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1 to thank everybody for their views and comments. There at the very  
2 outset of comments that Les had offered with regard to, again I mention  
3 the concerns about the safe robustness of the cask design, that's a  
4 paramount concern to us. Mentioned before the concern about accidents.

5 Accidents happen, we want to be sure, in our review that we  
6 appropriately consider the types of accidents, the significance, the  
7 severity of accidents, as well as in the cask design. The ability to  
8 be able to demonstrate through our reviews, our analysis that the  
9 design is such that the cask will maintain and perform as designed  
10 under those different accident concerns and considerations.

11 Yes, whether we live here in Nevada, I live in Maryland,  
12 live near an interstate, work near a railroad crossing, we all, whether  
13 we live or work in areas are near different types of modes of  
14 transportation, we have concerns. We all have concerns for personal  
15 safety. Property value concerns. That our issues are shared in that  
16 regard, but I want you to know that we very much share the interest  
17 with regard to a concern on the overall safety of the transport of  
18 spent fuel. And I have -- from that perspective I appreciate all of  
19 your views and comments that were offered. I found them very useful,  
20 informative. And as we had mentioned, we will be putting together a  
21 summary report of comments we've heard today, comments from our  
22 meetings yesterday during the day, and yesterday evening in Henderson,  
23 and other meetings. Our plans again are that we will be issuing in the  
24 spring a report, as Rob had mentioned, on our review of our impact  
25 analysis statement for supporting transportation. That study will be  
coming out in roughly the March time frame, our report on summarizing  
ANNe information we've learned and gained from you here today, and

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1 others at previous meetings, as far as the scope and plans for our  
2 study of looking at transportation accident considerations, that report  
3 will be out in the spring as well.

4 We're planning a second series of meetings in the, as Rob  
5 mentioned, late spring, early summer. And we will have these reports  
6 out to you well in advance, so at those meetings you'll have the  
7 opportunity to look at the outcome of our reports that we've issued.  
8 How we are seeing those concerns could be addressed in our study plans.

9 We'd be very much interested in your views and comments as to whether  
10 we heard you and whether we understood you. And with our  
11 considerations of whether you feel we're going down the correct path or  
12 not, and looking for all your input.

13 Before we do close, I'd ask that Dr. Massey, Charles Massey  
14 would add one more comment with regard to radiation dose from transport  
15 packages. That's come up in a couple of different comments, and I  
16 think it's important that we, as best we can, explain that and address,  
17 hopefully address some of your concerns that you've raised today, as  
18 well as laying the footprint or laying the process for how we'll  
19 consider that concern in our study plans. Charles.

20 DR. MASSEY: Yes, as Rob stated the limit for the radiation  
21 exposure coming off of cask is 10 millirems per hour at two meters.  
22 What does that mean? If you're standing a little over six feet away  
23 from a cask, stood there for one hour, you would receive 10 millirem.  
24 10 millirems is roughly the dose you would receive from one chest  
25 x-ray, so in that second or so that you get a chest x-ray, you would  
receive roughly the same dose as if you stood next to -- six point six

feet away, a spent fuel cask, that had fuel, that was at the regulatory

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1 limit.

2 As you go away from the cask that radiation dose rate falls  
3 off very rapidly. The way I use to sort of explain -- some people get  
4 a little sense for why it goes down, is if you stand next to a fire,  
5 we're looking at radiation, but if you stand next to your fire, as you  
6 start to walk away, the heat that you can feel coming off goes off very  
7 quickly. Same type of principle applies to the electromagnetic  
8 radiation coming off of the spent fuel cask. At about 100 feet away  
9 from a spent fuel cask, loaded so that it's at the regulatory limit,  
10 that dose rate is about the same as you get just from the ground and  
11 the air. It's essentially indistinguishable from background. So  
12 hopefully that gives a little bit of context on what is the maximum  
13 limit allowed in the radiation exposure that could come off of these  
14 cask.

15 MR. CAMERON: Okay. Thank you, Charles. That was a good  
16 addition. I'm glad you added that. And I would like to thank all of  
17 you, and encourage you to come up and talk to the NRC staff here in the  
18 audience if you have further questions and we'll see you again. And  
19 thanks again to Les Bradshaw and Nye County for inviting us out.

20 Thank you.

21 [Whereupon, the meeting was concluded.]

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