OFFICIAL TRANSCRIPT OF PROCEEDINGS
UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Title: PUBLIC MEETING TO INVITE COMMENT ON PROPSED REGULATIONS FOR THE DISPOSAL OF HIGH LEVEL RADIOACTIVE WASTE IN A GEOLOGICAL REPOSITORY AT YUCCA MOUNTAIN

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PAGES: 1 - 115

ANN RILEY & ASSOCIATES, LTD.
1025 Connecticut Avenue, NW, Suite 1014
Washington, D.C. 20036
(202) 842-0034

1 UNITED STATES OF AMERICA

2 NUCLEAR REGULATORY COMMISSION

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4 PUBLIC MEETING ON PROPOSED

5 REGULATIONS (10 PART 63) FOR A

6 HIGH-LEVEL WASTE REPOSITORY

7 AT YUCCA MOUNTAIN, NEVADA

8

9 University of Nevada, Las Vegas

10 Tam Alumni Center

11 4505 Maryland Parkway

12 Las Vegas, Nevada

13

14 Wednesday, June 16, 1999

15 The above-entitled meeting commenced, pursuant to

16 notice, at 7:10 p.m.

17

18 PARTICIPANTS:

19 CHIP CAMERON, Facilitator

20 BILL REAMER

21 JANET KOTRA

22 TIM McCARTIN

23 ABY MOHSENI

24 KEITH McCONNELL

25 ROB LEWIS

1 P R O C E E D I N G S

2 [7:10 p.m.]

3 MR. CAMERON: Good evening, everybody, and welcome
4 to the Nuclear Regulatory Commission's public meeting on the
5 NRC's regulatory responsibilities for a high level waste
6 repository.

7 We'd like to thank the University of Nevada-Las
8 Vegas for providing us with this facility for our meeting
9 tonight.

10 My name is Chip Cameron and I'm the Special
11 Counsel for Public Liaison at the NRC, and I'm pleased to
12 serve as a facilitator for tonight's meeting. And in that
13 role, my job is to try to help all of you have a more
14 effective meeting.

15 Part of having a more effective meeting is to make
16 sure that everybody in the back can hear me, and I guess --
17 can everybody hear this? Is this microphone working?

18 MR. REAMER: It cuts in and out. You have to talk
19 right on the top of it.

20 MR. CAMERON: Okay. My objective in terms of
21 having an effective meeting is to make sure that NRC staff
22 clearly explain the responsibilities in this area; to make
23 sure that the NRC understands the comments that you have
24 tonight.

25 Secondly, we want to make sure that everybody here

1 who wants to talk has an opportunity to talk.

2 A third goal is to try to keep things relevant and
3 focused and you will see when we go through the agenda in a
4 few minutes that we do have some specific topics to cover.
5 We realize that there are other concerns in the high level
6 waste area, in addition to NRC's responsibilities, and if we
7 can assist you in providing some information on that, fine,
8 but I would like to keep us focused on NRC responsibilities
9 tonight.

10 Lastly, I would hope that all of us will be
11 courteous, one person talking at a time, and not
12 interrupting each other.

13 The ground rules tonight are simple. When we go
14 to the audience for discussion, and we're going to do that a
15 lot, we're going to keep the presentations short tonight, to
16 give you a basis for a discussion, but when we do go to you
17 for questions or comments, I'll call on you and if you could
18 state your name and your affiliation, if appropriate, and
19 either go to one of these mics or I'll give you this
20 worthless mic that I'm using here.

21 We are keeping a transcript and we want to make
22 sure that when we go back to Washington, we know what was
23 said, so that we can consider that in the decision-making
24 process that we're involved in.

25 I would ask you, after the meeting, to please talk

1 to our stenographer, Cary, over here, with some name
2 spellings. He may ask you what the correct spelling of your
3 name is.
4 I would just ask you to try to be concise in your
5 comments, so that we can give everybody a chance to talk
6 tonight.
7 Now, in terms of the agenda, and there was a copy
8 -- or there were copies of the agenda out there for you, the
9 first presentation that we're going to do is a presentation
10 by Bill Reamer. Bill is up here at the table and he is the
11 person who has the lead management responsibility for NRC's
12 work on the high level waste repository. He is going to
13 talk to you about NRC's roles and responsibilities and also
14 about opportunities for the public to be involved in the NRC
15 decision-making on the process.
16 Then we'll go to all of you for a discussion.
17 The next items, we're going to bring Jan Kotra up
18 and also Tim McCartin from the NRC to talk about the
19 proposed rule that the NRC has out for comment now on the
20 licensing standards that DOE would have to meet before any
21 license would be issued for a repository at Yucca Mountain.
22 One of the things that we heard the last time we
23 were out here is that people need more time to evaluate this
24 proposed rule and to comment on it, and why doesn't NRC
25 extend the comment period.

1 The NRC has done so. The comment period closes at
2 the end of this month. Janet Kotra is going to be providing
3 you with more information on that. But besides giving you
4 an overview of NRC responsibilities, one specific purpose
5 here tonight is to get your comments on the proposed rule
6 and those comments will be evaluated in the NRC
7 decision-making process.
8 You can also file a written comment on the
9 proposed rule. Those of you who don't have a copy of it, we
10 do have copies of the proposed rule out in front. Judy
11 Goodwin has them, if anybody needs them.
12 So after those two presentations by Janet and Tim,
13 we will go to the audience for discussion of the proposed
14 rule.
15 The next block is going to address two specific
16 issues of concern that we also heard when we were last out
17 here in March. One concerns how will the NRC rule protect
18 infants and children, and Aby Mohseni from the NRC staff is
19 going to talk about that.
20 The other special topic that we heard about was
21 the concept of multiple protective barriers in the
22 repository and how the NRC rule addresses those multiple
23 barriers. Keith McConnell from the NRC staff will talk to
24 that.
25 Then we're going to go out to you for discussion

1 of those topics.

2 The last topic, specific topic, at any rate, is,
3 again, an area of concern that was expressed when the NRC
4 was out here last time. We wanted to come back and provide
5 more information about that. That's the whole issue of high
6 level waste packaging and transportation, and we have
7 someone from our spent fuel project office, Rob Lewis, here
8 tonight, who is going to talk about the NRC regulations.

9 At the end of that presentation, Bill Reamer is
10 going to say a couple words about a recent proposed rule
11 that the NRC had asked for comments on that dealt with the
12 subject of license renewal. This is the renewal of licenses
13 for nuclear power plants.

14 That rule had some implications for high level
15 waste transport in Nevada, and Bill is going to try to
16 clarify what the implications of that rule are for further
17 work on the repository.

18 Our wrap-up will be for questions or comments that
19 we did not cover tonight.

20 I think we'll get started. We want to hear all of
21 you tonight and I think we have time to do that.

22 So, Bill, would you like to start off?

23 MR. REAMER: Thank you, Jeff. Welcome to
24 everyone. Thank you very much for coming. Our audio system
25 obviously leaves something to be desired tonight. Maybe we

1 should just give it up. It's cutting in and out. In any
2 event, we'll go ahead despite it.
3 In any event, thanks very much for coming tonight.
4 MR. CAMERON: You can't have the two mics
5 adjacent.
6 MR. REAMER: There are more problems than I've got
7 solutions. How's that?
8 Tonight we want to continue the dialogue that we
9 started in March, in the March meeting. We know that you're
10 very interested and concerned about our rules, the rules
11 that the Department of Energy has to meet if they are to
12 have -- if they are to be allowed to have a repository at
13 Yucca Mountain, and we know that these are rules that must
14 be protective of all Nevadans, and it's going to be our
15 responsibility really to convince you, I think, that we
16 believe that and why we believe that, and we are very
17 interested in hearing your comments on what we say.
18 Another goal tonight is to try to work to
19 establish a relationship with Nevadans so that they can
20 understand who NRC is, that we are independent of the
21 Department of Energy, that we are here for the long term,
22 and that we understand it's our job to protect the public
23 health and safety and that that's what we must do and will
24 do.
25 Now, in the March 23rd meeting that Chip

1 mentioned, I think one of the issues, one of the concerns
2 that we heard was who is NRC. So I'd like to address that.
3 We are independent. We're an independent
4 regulatory agency. We're not part of the Department of
5 Energy. Our job is to protect the public health and safety.
6 We have a great deal of experience in regulating atomic
7 energy activities. We regulate nuclear power plants. We
8 regulate medical uses of radioactive material. We regulate
9 nuclear waste disposal and storage, and we regulate
10 transportation and other activities and, by law, it's our
11 job to regulate the Department of Energy and assure safe
12 disposal of high level waste.
13 Now, before going on and saying more about the
14 NRC, I think I'd like to set the table by talking just a
15 minute about what DOE will be doing. DOE will be and is
16 evaluating the Yucca Mountain site and its suitability for a
17 high level waste repository. It's working in preparing an
18 environmental impact statement, a statement that we
19 understand will be published in draft form for comment at
20 the end of July of this year.
21 It's working to make a decision on whether to
22 recommend Yucca Mountain as a site for a high level waste
23 repository. If it makes that recommendation and if that
24 recommendation is approved by the President and approved by
25 the Congress, then it will submit a license application to

1 the Nuclear Regulatory Commission, that's us.

2 If the NRC issues a license, then the Department

3 of Energy will construct and operate a repository, and it's

4 also responsible for providing long-term oversight for that

5 facility.

6 In that context, with that background, what is

7 NRC's role? As I've said, by law, it's to regulate, as an

8 independent agency, the Department of Energy and to assure

9 that any disposal of waste, wherever it is, if it's at Yucca

10 Mountain, is safe.

11 We are not -- we, the NRC, are not a proponent or

12 opponent of a repository at Yucca Mountain. We use health

13 and safety in our decisions as a basis for our decisions.

14 It's our responsibility to set the rules that DOE must meet

15 and these rules must be protective of the public health and

16 safety of Nevadans.

17 Tonight's meeting is about the rules that we have

18 proposed for the DOE and I want to, again, restate that it's

19 our objective to adopt rules that are protective of all

20 Nevadans.

21 We also have the responsibility to comment on the

22 Department of Energy's draft environmental impact statement,

23 and I'd like to say, with respect to that item, that we do

24 have preliminary plans to come back to Las Vegas for a

25 meeting to hear your comments on the Department of Energy's

1 draft EIS, because we understand that in order for us to
2 prepare our comments, and I talked earlier about wanting to
3 have that long-term relationship with Nevadans, we need to
4 know what's on your mind, as well.
5 Then if a site is approved and a license
6 application is filed, then it will be our responsibility to
7 decide whether to permit construction and whether later to
8 license operation of a repository.
9 To get a license, I want to, again, reemphasize
10 that for DOE to obtain a license from the NRC, it has to
11 demonstrate to NRC's satisfaction that the repository can be
12 safely operated and if we do issue a license to the
13 Department of Energy for a repository, then it's our
14 responsibility to assure that the Department of Energy obeys
15 those rules.
16 And as I said, we're here for the long term and
17 that is part of our responsibility over the long term, to be
18 sure that the rules that we adopt are obeyed by the DOE.
19 How will we carry out our responsibility? By
20 fairly and objectively reviewing all the information. I'm
21 talking about an impartial and rigorous evaluation of the
22 Department of Energy's information, and to make decisions
23 that are open and that are justified by the facts, and I'm
24 saying that any licensing decision that we make will be
25 based on the facts and not on politics.

1 Now, we will use a step-wise process, if a license
2 application is filed, that takes advantage of new
3 information along the way. It's an incremental process.
4 There is no waste at Yucca Mountain right now and there
5 won't be any waste disposed at Yucca Mountain until the
6 Department of Energy clears each of these steps.
7 First, it is to demonstrate, based on the
8 information, that they should be permitted to construct,
9 that DOE should be permitted to build the repository. Then
10 a later step that they must, based on the information,
11 demonstrate that they should be permitted to possess waste
12 at a site. Then after waste is and if waste is placed in a
13 repository, to then demonstrate yet again that the
14 repository can be closed, can be safely closed, and,
15 finally, to demonstrate that any license that has been
16 issued can be terminated safely, protecting all Nevadans.
17 Of course, our commitment to you is that the
18 public will be involved throughout the process, not just
19 tonight, but throughout each of those steps as they occur.
20 We need your support to do our job and we hope to
21 earn that support by involving you. That's why we
22 understand that public involvement is important.
23 Tonight, the dialogue is informal dialogue. We
24 want to strengthen your belief that we are reaching out to
25 the public. We hope to do that. We hope, as I said, to

1 work at building a relationship with the people in Nevada.
2 Tonight, we want to continue to hear your comments on our
3 proposed rules.
4 We know that we need to listen to what you have to
5 say and to provide responses to each of those concerns.
6 More formal participation would occur if there is
7 a license application. We understand that public
8 involvement is a two-way street. You provide views, we
9 listen, we follow up in a way that you can see, and we make
10 sure that you have the information that you need.
11 Tonight, we will try to respond further to
12 concerns that we heard in March, why we are issuing our
13 rules now and how those rules, we believe, will be
14 protective of Nevadans, why we think that the proposal that
15 we made is protective enough, does the proposal assure
16 protection through multiple lines of defense, and how are
17 people protected from the risks of transportation.
18 We want to use the extended comment period that's
19 been provided in a constructive way to continue the dialogue
20 and we've restructured the format tonight so that we have
21 more time, so that there is more time to hear from you and
22 less time where we're doing the talking.
23 So again, thank you very much. I think at that
24 point I'll stop.
25 MR. CAMERON: Thank you very much, Bill. Are

1 there comments or questions on Bill's presentation in
2 reference to the goals of the NRC or opportunities for
3 public involvement throughout the NRC process? Yes, sir.
4 MR. NIELSEN: Is there a local NRC office?
5 MR. CAMERON: Could you just state your name and
6 use a microphone, please?
7 MR. NIELSEN: Rick Nielsen.
8 MR. CAMERON: Okay. Rich Nielsen wanted to know
9 if there is a locally staffed NRC office here and how we
10 contact them.
11 Yes, there is a locally staffed office. There are
12 two individuals who are here. They've been here --
13 basically, the two of them have been here five years. They
14 know what's going on at the site. William Belke and Chad
15 Glenn. We hope that if you do need any further information
16 about how to contact them, we would certainly be happy to
17 give you that.
18 I might add that if there is a license application
19 that is filed, we see the need for that office to expand and
20 we will do that. In addition, as I said, we understand that
21 we need, from Washington, to come out and be here as well
22 and we will do that.
23 MR. CAMERON: What I think we'd like to get
24 comment on, also, are there any suggestions that anybody has
25 in the audience on how the NRC could more effectively

1 provide information and more involve people in the
2 decision-making process. We're going to go over to -- do
3 you have any luck with that, Bill?
4 Yes, sir.
5 MR. McCANN: My name is Don McCann. I'd like to
6 hear more about the people here and how to contact them.
7 MR. CAMERON: Thank you very much, sir. We will
8 have that information for you. We will post it up here.
9 Okay.
10 Yes, sir. Dr. Chase.
11 DR. CHASE: I hope that the -- what the scientists
12 know about this thing. I want to know --
13 MR. CAMERON: He can't hear at all. Why don't you
14 use this mic?
15 DR. CHASE: I want to know what NRC -- if you use
16 the material as a measure or do you use -- material being
17 benign. Just what will you be using?
18 MR. CAMERON: I think that that question about the
19 number that we will be using will be addressed in a
20 presentation that is coming up in a few minutes. So we'll
21 hold the answer to that until we get to that presentation.
22 Go ahead.
23 DR. CHASE: What is NRC's past experience with
24 deep geological spent fuel repositories? In addition, will
25 your licensing procedures include geological and

1 hydrological hazards, as well? Say, if the repository was
2 to be in existence for 5,000 years.
3 MR. CAMERON: Thank you, Dr. Chase. Bill, do you
4 want to talk about past experience?
5 MR. REAMER: In addition to the experience that we
6 have in regulation Atomic Energy Act activities, we have a
7 program to oversee what the Department of Energy is doing
8 prior to filing of the license application and we've been
9 observing, watching, providing questions to the Department
10 of Energy for some time in connection with their site
11 characterization activities.
12 MR. CAMERON: Yes, ma'am. Could you please come
13 up to the mic? Yes, we're there. Try this microphone.
14 MS. ZOLKOVER: In the book Atomic Scientists,
15 Christen Schrader said, in his article, High Level Waste -
16 Low Level Lodging, says that the DOE has called in many
17 experts on this question, what do you like about Yucca
18 Mountain, and when they have something bad to say, that
19 wasn't what the DOE asked them and they don't include
20 negative comments in their evaluations.
21 They may turn over to you all kinds of statements
22 about good things at Yucca Mountain, but they are
23 selectively eliminating dangers.
24 Who are your scientists? How many of you are
25 scientists and do you call on groups of scientists from the

1 National Academy of Science?

2 MR. CAMERON: That's a good question and you'll
3 get a little bit of a flavor for the qualifications when we
4 introduce the presenters tonight, but it, I think, deserves
5 a broader answer to that. Bill?

6 MR. REAMER: We have technical people within the
7 agency, the Nuclear Regulatory Commission, and specifically
8 within our branch, the high level waste branch. In
9 addition, we have a dedicated group of scientists in San
10 Antonio at the Center for Nuclear Regulatory Waste Analyses
11 that assist us, and that's their sole function, to assist
12 us.

13 We are aware, very aware of what the issues are,
14 what the technical issues are, and we will ask questions
15 that DOE cannot answer, they will have to answer our
16 questions.

17 MR. CAMERON: And could I just ask you, the woman
18 that asked that question, if you would just identify
19 yourself for the stenographer.

20 MS. ZOLKOVER: I'm Adrian Zolkover, a resident of
21 Nevada, Emerson.

22 MR. CAMERON: Thank you very much.

23 MS. JOHNSON: My name is Abbie Johnson, and I'm
24 here representing Eureka County Doubt. I have a couple
25 questions concerning your comments about the EIS. Actually,

1 first of all, a statement that all ten effected units of
2 local government and the State of Nevada asked the
3 Department of Energy to extend the comment period on the
4 upcoming EIS to 180 days from the currently proposed 90
5 days, and they have turned us down.
6 I want to say to you, as the NRC, that it is going
7 to be very difficult for the counties and the state to
8 review the document fully in the 90-day comment period.
9 I would assume it might be hard for the NRC to do
10 that, too. And I would comment that any agency that has the
11 same troubles that we do with the 90-day comment period
12 should speak up.
13 And that leads to my second thing, which is a
14 question. You said that the NRC is planning to come to Las
15 Vegas to hear what Nevadans think about the environmental
16 impact statement. Is that going to be during the 90-day
17 review period or is that going to be coming to the Las Vegas
18 hearing and listening to what will be said at the Las Vegas
19 hearing?
20 MR. CAMERON: Bill, I think that is a question for
21 you. One was a statement and one was sort of --
22 MS. JOHNSON: One was a statement and one was a
23 question.
24 MR. REAMER: One was a statement, and, yes, we're
25 aware of the 90-day comment period and I agree that it's a

1 very tight comment period and we are aware that requests
2 have been made to the Department to extend it, and we're
3 also aware that the Department has made a decision not to
4 extend it.
5 So we are -- our schedule, our plans are to try to
6 provide our comments in the timeframe that we have been
7 given. That's with respect to your first point.
8 The second point is that our hope would be that we
9 would be able to hold a separate meeting and not -- in
10 addition to observing the meeting that we know the
11 Department of Energy is going to hold.
12 If you have any reaction to that, if you think
13 that's a good idea, or anyone else in the audience, if you
14 think that is a good idea or a bad idea, we would be very
15 interested in hearing that.
16 MR. CAMERON: Since we are trying to keep track of
17 the action items that come out of this meeting, Abbie,
18 aren't you -- are you requesting that the NRC, as the
19 regulatory licensing agency, request that the Department of
20 Energy extend the comment period on the Draft Environmental
21 Impact Similar?
22 MS. JOHNSON: Yes.
23 DR. CASE: All right.
24 MS. JOHNSON: I just have one -- another, a
25 different topic. This conversation about NRC has an office

1 here, my understanding of that office is that this is very
2 technically based and it is the office for the two folks who
3 go out and look at the work that is being done at the Yucca
4 Mountain site.
5 In one of your publications, "Citizens Guide to
6 the NRC," there was some information, it says that the
7 Office of Public Affairs has four locations, the farthest
8 one west is in Arlington, Texas. And I would suggest that
9 if you truly want public involvement in the matter that you
10 need to have an office that is skilled in public involvement
11 and communication with the public.
12 And I also want to say, since I made those
13 comments, to date I have gotten all these phone calls. I am
14 very impressed.
15 MR. CAMERON: Okay. Thank you, Abbie. We will
16 note that request.
17 Bill, do you have any comment on that at this
18 point?
19 MR. REAMER: Well, I do appreciate your views,
20 particular the views about the local representation. I
21 personally don't see how we can have a relationship, how we
22 can hope to have a relationship with Nevadans if we are not
23 present.
24 My plan, my hope is that the people in Washington
25 -- me -- will be here regularly, that you will know who I

1 am, that you will know my phone number, that you can see me
2 and ask me questions when I am here, and you can call me if
3 something occurs to you that you need information when I am
4 not here. That is, I think, realistically, the way we can
5 do it. But I appreciate your views that perhaps there is
6 another way to do it, and we will give those consideration.
7 MR. CAMERON: Okay. Thanks, Bill.
8 Dr. Chase, do you have another --
9 DR. CHASE: Just one. I would like to comment
10 on --
11 MR. CAMERON: Dr. Chase, let me give you a set --
12 everybody.
13 DR. CHASE: First of all, my contact with the
14 office -- people are very helpful.
15 MR. CAMERON: I can't hear.
16 DR. CHASE: I read the DOE reports. Beautifully
17 written, -- bound very nice, the pages don't fall out. But
18 there is one thing I find that is very -- I find that some
19 of the reports are very technical, written in language that,
20 frankly, the average person doesn't understand. So I don't
21 know what -- and not have a committee set up to simplify the
22 language. I don't say change the thoughts or change the
23 opinions, but put in a language that somebody can
24 understand.
25 I am a geologist, and I have seen some reports

1 come through on geology written in such a way that I didn't
2 understand what it was saying. What good is such a report?
3 I would respectfully ask that NRC, when it issues a report,
4 which they know is going to be printed, hopefully, it will
5 be read by the public, write it in language that the public
6 can understand. Thank you.
7 MR. CAMERON: Okay. Thank you very much, that is
8 a good point for the NRC to remember.
9 Bill, do you have any --
10 MR. REAMER: Well, only, I don't see how we can
11 promise to have a dialogue if we don't speak in terms that
12 have this kind of understanding. So in that sense I agree
13 with what you are saying.
14 MR. CAMERON: All right. Any other questions on
15 this segment? Judy.
16 MS. SHAFER: My question is, you are talking about
17 the reviewing the information. My question is, what is your
18 quality assurance program, who do you verify that the
19 information DOE is putting is correct?
20 MR. REAMER: Well, the quality assurance
21 requirements that we would impose on the Department of
22 Energy if they are ever an applicant for a license are the
23 quality assurance requirements that we impose on all the
24 nuclear power plants, and all the activities that we
25 regulate, and we would not make any exception with respect

1 to the Department of Energy. We would insist that they
2 abide by those rules.
3 Is there a follow-up question? Did I not -- if
4 there is a follow-up question, I would be happy to try and
5 respond to it.
6 MR. CAMERON: Judy, did that answer your question?
7 MS. SHAFER: Not really.
8 MR. CAMERON: I got some instructions that if you
9 hold the microphone like an ice cream cone, I am not sure
10 that, you know, this is the way to hold an ice cream cone,
11 but you get the point. All right. So hold it so it is on
12 like this. Go ahead, Judy.
13 MS. SHAFER: Okay. You were saying an objective
14 review of all information. So what I was saying is, how you
15 assure their information is correct?
16 MR. REAMER: Well, from a quality assurance
17 standpoint, that information has to have a pedigree, an
18 authenticity to it. Data that are used have to be tied back
19 to the source of those data. Models computer analyses that
20 are used, all have to be quality checked. Information is
21 not accepted just on the surface. We can't regulate in that
22 way, we don't regulate in that way. That is what I meant by
23 generally saying the requirements that we would apply to the
24 Department are the same ones that we apply to all of them,
25 and they deal with system quality of the information.

1 MR. CAMERON: Susan. Susan, say your name.

2 MS. ZIMMERMAN: Susan Zimmerman from the State of
3 Nevada Agency for Nuclear Projects. Regarding the quality
4 assurance question that has been asked, is the NRC going to
5 put every bit of data that DOE provides and do a pedigree
6 check on each data, given that, you know, DOE is going to
7 gather the whole -- their data is huge and it is going to
8 take quite a bit of time and effort to track all this data
9 back to its original source to make sure all the assumptions
10 were correct and everything like that. And given the three
11 year time frame for the reviewing the license application,
12 are you sure you are going to do that?

13 MR. REAMER: Well, again, we will look at their
14 program and the way that they implement their program, it is
15 not just their program on paper, but are they living by
16 their program. Are they implementing their program? It is
17 their responsibility to assure the quality of their
18 information. We will look at their program. We will -- and
19 as we do with all licensees, we will sample the specific way
20 that they implement that program to be confident that the
21 quality that the program is intended to ensure is there and
22 a license won't be issued until that is done. The three
23 year timeframe is not going to result in a license that is
24 issued but doesn't meet our requirements. Our requirements
25 have to be met, that is understood by everyone.

1 MS. ZIMMERMAN: Given your statements about --
2 regarding quality assurance program are accurate, why didn't
3 you ask them -- I think when you issued 10 CFR 63, and one
4 of your requests for comments was, should NRC keep requiring
5 quality assurance programs for DOE high level waste
6 programs?
7 MR. REAMER: I am not specifically sure what you
8 are referring to, but our proposal is that the requirements
9 that apply, for example, to nuclear power plants be
10 satisfied by the Department of Energy in this -- for this
11 project as well.
12 MR. CAMERON: Janet, do you have something to add
13 on that?
14 DR. KOTRA: Yeah, my name is Janet Kotra, I am
15 with the NRC staff. The request for comment in the proposed
16 Part 63 regulation specifically asked if requiring a program
17 comparable to what is required for other licensees is
18 appropriate. I don't -- I can say with confidence that
19 there was no intent to imply that we wouldn't want quality
20 assurance. The question that we are asking -- is the
21 comparable program that we are proposing the right one, or
22 are there special considerations or concerns that we need to
23 be aware of to make sure that the quality assurance program
24 required of the Department is appropriate for a repository
25 at Yucca Mountain?

1 MR. CAMERON: Okay. Thank you, Janet. Sir?
2 SCOTT: Speaking of quality assurance, I have to
3 mention that I have read articles with regards to the --
4 regulatory -- downsizing -- to the Yucca Mountain project.
5 MR. REAMER: The Department of Energy -- the
6 Environmental Protection Agency, under the law, is to issue
7 a standard for the Yucca Mountain project and that standard
8 has not yet been issued. Later in the program we will
9 answer the question of why. We are proposing our rules at
10 this time. If that is not responsive to the question at the
11 time, I would suggest perhaps you might restate it at that
12 point.
13 MR. CAMERON: Okay. Let's take one more question
14 on this subject and then Janet and Tim, do you want to come
15 up to the table and we will get all of you right here.
16 MS. ZOLKOVER: The DOE -- this Adrian Zolkover
17 again. The DOE might get an A-plus, say, for the design of
18 Yucca Mountain, the tunnels, all the things they have done,
19 but DOE doesn't control earthquakes, they don't control the
20 weather. They don't control all kinds of things. Are you
21 holding them responsible or are you getting your own experts
22 to advise you about possibilities, probabilities, the time
23 they should wait to construct the rest of the tunnels? If
24 not, what kind of things they should store there? Is
25 plutonium very different than steel rods? I think it is.

1 And there is like eleven tons of plutonium and half of ton
2 you want to store a year. Things like that.
3 MR. REAMER: Are we holding DOE responsible or are
4 we getting our own experts? And the answer is both.
5 MR. CAMERON: Okay. The next segment. Bill, do
6 you --
7 BILL: That mike is not working. That mike may
8 work. This one, unless I am on -- this mike is working,
9 right?
10 MR. CAMERON: I think -- unfortunately, it is not
11 on. We will try -- we apologize for the microphone problems
12 we are having and I think Bill has a good suggestion. This
13 one seems to be working over here, so that if you could try
14 and make your way over to that mike, we will try to use
15 that, and I guess we will have our speakers use this one up
16 here.
17 Janet, you are going to be the first one to try
18 that, basically. But the next two presentations are on the
19 NRC's proposed rule, and Janet Kotra from the NRC staff is
20 going to be talking about why these standards are being
21 proposed now at this time, and why do they differ from the
22 standards used by the Environmental Protection Agency at the
23 Waste Isolation Pilot Plant in New Mexico.
24 And by way of introduction, Janet has a Ph.D. in
25 environmental and nuclear chemistry. She is one of the

1 principal authors of the NRC proposed rule and she works for
2 Bill Reamer in the High Level Waste Branch. Dr. Kotra
3 DR. KOTRA: Thank you, Chairman. Good evening, it
4 is good to be back in Las Vegas. As Chip indicated, we came
5 out in March and we heard a number of concerns and we tried
6 to address those concerns and we have focused our program
7 this evening to address specific issues that were raised in
8 those meetings. The first one being, why is that the NRC
9 appears to be stepping out in front of the Environmental
10 Protection Agency in proposing, implementing regulations for
11 Yucca Mountain.
12 First and foremost, we believe it is necessary at
13 this time to proceed to meet a very aggressive schedule in
14 order to fulfill properly our mission to protect the public
15 health and safety. In addition, we have an obligation to
16 comply with the Congressional mandate that was issued in
17 1992, and I will talk a little bit more about that.
18 But before that, the framework for licensing
19 geological disposal in this country was laid out by the
20 Congress in the Nuclear Policy Act of 1982, fully ten years
21 before. In that initial legislation, the NRC was directed
22 to develop technical criteria for the licensing of a
23 repository. The Congress directed the NRC to develop
24 criteria that provided for the use of a system of multiple
25 barriers. They directed the NRC to specify a time during

1 which waste can be retrieved.

2 I think this may get a little bit to the question,
3 and we will talk more as the evening progresses about the
4 various stages of the repository and how those correspond to
5 licensing actions that the NRC will take and when we
6 consider an operation of a repository operational; when we
7 believe that waste emplacement has been completed, but we
8 retain retrievability; when consideration is given to
9 actually closing up the repository, backfilling it, if that
10 is part of the design that the Department of Energy put
11 forward; and even after that period of time, how long is it
12 appropriate to continue monitoring use of active oversight
13 controls, et cetera.

14 Lastly, the 1982 legislation directed the NRC to
15 conform to, at that time, generic EPA standards, which were
16 also mandated by the legislation.

17 In 1992, as many of you that I recognize in this
18 room are aware, new legislation was issued that directed the
19 Environmental Protection Agency to develop new standards
20 specifically for Yucca Mountain. Now, unlike the previous
21 generic standards that EPA had developed which focused on
22 specifying particular release rates, which came from a study
23 of what was known at the time of what was thought to be the
24 capability of a hypothetical repository, or a hypothetical
25 set of repositories, if I recall correctly, the new

1 legislation directed the Environmental Protection Agency to
2 issue health-based standards that explicitly provide
3 protection for an individual in the vicinity of a
4 repository, and that could would be the fundamental decision
5 criteria that would be issued by the Environmental
6 Protection Agency and which would be implemented by the
7 Nuclear Regulatory Commission.
8 The 1992 legislation did not stop there. It asked
9 the EPA to contract with the National Academy of Sciences to
10 provide guidance on what the technical basis for these
11 standards should be. That report was issued in 1995. And
12 if any of you are not familiar with that report and would
13 like to be, I can tell you how to obtain it. It has been
14 publicly available now for almost four years.
15 And, lastly, the legislation specified that these
16 new standards that EPA would issue would be the only
17 standards that would apply for radiological releases from
18 Yucca Mountain.
19 Germane to answering the question, why NRC felt it
20 was imperative that we move forward with proposing a fairly
21 complicated and very important set of implementing
22 regulations now is that we were directed to conform to the
23 new standards that EPA will issue, based on and consistent
24 with the National Academy of Sciences report within a single
25 year.

1 And as Bill has said tonight, we feel very
2 strongly that our process for this -- for issuing
3 regulations for a first of a kind facility such as this
4 needs to involve an extra measure of public involvement. We
5 need to go above and beyond the routine notice and comment
6 process that we have used in the past and we want to
7 initiate and maintain a dialogue with the people, but
8 particularly with people in Nevada, on whether the decision
9 criteria that we are developing here are the right ones. We
10 feel that it is necessary to start that process as soon as
11 possible so that we can include timely and the most
12 meaningful public involvement in the process.
13 Lastly, I might add that, and this in answering
14 the second question, at the same the Energy Policy Act was
15 passed in 1992, the Congress also issued the WIP-WIN
16 Withdrawal Act that addressed primarily the criteria that
17 would be used and -- excuse me -- the procedure for
18 withdrawing rad for the Waste Isolation Pilot Plant in New
19 Mexico. However, it also included language that stated
20 categorically that the older EPA standards, which I alluded
21 to earlier, would not apply to Yucca Mountain, or for any
22 other site characterized under the Nuclear Waste Policy Act
23 should Yucca Mountain be -- the study of Yucca Mountain be
24 discontinued for development as a repository and some other
25 site be pursued for characterization and possible licensing.

1 So, why now? As I said, the law requires us to
2 conform very quickly. The EPA standards are in preparation
3 and those of us on the technical staff of the Nuclear
4 Regulatory Commission have been working with the staff of
5 the Environmental Protection Agency. We know they are in
6 preparation, we know -- we understand that they are close to
7 issuing a proposal, that the National Academy of Sciences'
8 recommendation upon which those standards are to be based
9 have been available since August 1st of 1995.
10 So we are fairly confident that we know the type
11 of standard that EPA is going to be issuing, and that we
12 know that there are certain changes that we need to make to
13 our regulations, for a number of reasons -- to update them,
14 to reflect that we have learned a great deal in the last 15
15 to 20 years in estimating and reviewing and evaluating an
16 application for a repository. That the Congress has given
17 us different instructions in terms of what is the most
18 important decision criteria, and we need to have
19 implementing regulations in place that reflect that.
20 And, lastly, again, to allow for an expanded
21 public involvement. That takes time. It takes more than a
22 year. And that is why we are here tonight, and that is why
23 we hope to be back again, in order to be able to allow for
24 this dialogue to unfold and to evolve.
25 With regard to the second question on the agenda

1 -- well, why are you going to have different standards for
2 Yucca Mountain for WIP? Because EPA has not yet come
3 forward with its proposal for Yucca Mountain, it is
4 understandable that people, not knowing that, will look at
5 what we have proposed in the interim, an overall performance
6 objective for protecting public health and safety in the
7 vicinity of Yucca Mountain, and say, well, this doesn't look
8 like what EPA used to certify the Waste Isolation Pilot
9 Plant in New Mexico. That's true.
10 The reason why, as I said earlier, the law
11 requires a different safety strategy. The law has done
12 nothing of relieving either agency of their responsibilities
13 to protect public health and safety, but we have to use a
14 different strategy to accomplish that under the law. The
15 National Academy of Sciences made a number of very specific
16 recommendations that support this different strategy, and
17 perhaps one of the most salient being that it is the overall
18 performance of the facility, -- performance defined as
19 protecting individuals to a certain standard -- that counts.
20 And that, therefore, implementing regulations -- and the
21 National Academy of Sciences did provide additional
22 recommendations specifically directed at the Nuclear
23 Regulatory Commission, in addition to advising EPA, that it
24 was important that those implementing regulations support,
25 be directly tied to, and have a clear link to implementing

1 that overall safety strategy.

2 We believe that we have put forward in this
3 proposal an approach that protects the individual from all
4 sources of exposure, that no single pathway or path of
5 exposure, including groundwater, can result in an
6 unacceptable risk that is out of kilter or inconsistent with
7 the level of protection that we require for all the other
8 facilities that we license, and that it is consistent with
9 our over-arching obligation to protect the public health and
10 safety of the people living near a repository. That is the
11 objective of our High Level Waste Program, that is why we
12 are here.

13 What have we done to develop the proposal that we
14 are here to talk about tonight? As I said earlier, we have
15 interacted to the extent that we have been able. We have
16 offered the assistance of our technical contractor in San
17 Antonio, the Center for Nuclear Waste Regulatory Analysis,
18 to provide the results of 15 years of performance assessment
19 experience.

20 Now, Tim will describe for you in a little more
21 detail in his presentation what we mean by the term
22 "performance assessment." But in short form, it is the use
23 of technical models, of integrating the science of all the
24 different factors that go into determining whether the
25 safety standards are met.

1 And we have learned a lot in the last 15 years.
2 We have offered our experience. The question was asked
3 earlier, and it was a very good one, -- are we just going to
4 rely on DOE's assertion that, oh, yeah, the repository meets
5 the standard? The answer to that is clearly no. Are we
6 going to be able to duplicate everything they do? No, we
7 don't have the resources for that.
8 So how do we address that? We have hired a
9 contractor, an independent contractor that has -- that
10 supplements a fairly substantial body of technical expertise
11 that we have on the NRC staff to provide our own performance
12 assessment capability, to have our own computer models with
13 which we can build and probe the assertions that DOE makes,
14 and say, are these assertions sound? Are they supported by
15 the technical literature? Are there peer review
16 publications out there that suggest that other models must
17 be considered? Has DOE done a credible job of doing that?
18 All of that is part and parcel of our program.
19 And we offered to share that with the Environmental
20 Protection Agency and the results of experience that we have
21 had in that area to encourage the development of practical
22 and scientifically supportable standards that are protective
23 of public health and safety.
24 We have proposed regulations that we believe focus
25 on what is most important to assuring that the repository

1 meets the safety criteria. We have proposed an overall
2 safety objective for now, in the absence of an EPA final
3 standard, that we believe is protective, that is generally
4 consistent with the recommendations of the National Academy
5 of Sciences and we believe is scientifically demonstrable.
6 Now, let me just say here, that something that is
7 scientifically demonstrable does not necessarily that it
8 will be demonstrable in the affirmative, but that science is
9 capable of supporting a demonstration does not mean that we
10 would agree that that is protective of public health and
11 safety. I just want to make that distinction here, that
12 just because the standard can be implemented does not mean
13 that they can be passed. We are here to ensure that it is a
14 scientifically sound standard, that is asking for
15 information that science can deliver to support our
16 judgment. That does mean we are looking for a standard that
17 DOE can pass under any circumstances.
18 So to draw my presentation to a close, I want to
19 say that we are here tonight to seek your comments.
20 Anything that you say tonight will be made part of the
21 record, but, also, please feel free after you leave this
22 evening, if you have additional thoughts or concerns, to
23 send us a letter, to send us written comments. Do these
24 proposed regulations provide a sound basis for NRC to judge
25 the safety of the repository? We want your input and we

1 welcome questions.

2 MR. CAMERON: Okay. We are going to Tim McCartin
3 and then we are going to come back for questions to both of
4 them. And Tim is going to give us an overview of the
5 proposed regulations. We also works in the High Level Waste
6 Branch for Bill Reamer. He has a master's degree in physics
7 and he has 20 years experience with the process of
8 performance assessment for high level waste repositories.

9 Tim, we are going to turn it over to you, and I am
10 going to be putting a portable microphone system up on the
11 table for the audience. And I would just like to thank
12 April and Gil for helping us out with that.

13 Go ahead, Tim.

14 MR. McCARTIN: Okay. Good evening. Tonight I
15 would like to describe the approach in the NRC regulation
16 for protecting the public and groundwater, and I will focus
17 on three main topics. The requirements in the regulation
18 that DOE evaluate safety, have plans and procedures for
19 safety and have measures for continued oversight.

20 Generally, the safety evaluation involves an
21 estimation of dose to individuals. Therefore, it has tended
22 to receive more attention than other requirements. But I
23 would like to emphasize that the other two requirements are
24 just as important. There are plans and procedures that must
25 be implemented by the Department of Energy to ensure that

1 the repository, if a license is granted, is operated safely.
2 And the continued oversight is also important.
3 For long-term performance, this continued oversight will
4 ensure that future generations are protected, also.
5 I would like to go through those three particular
6 points in a little more detail. In terms of the evaluation
7 of the repository, as I mentioned, this is typically a dose
8 calculation. In doing the dose calculation, what needs to
9 be done is DOE will have to identify all the different ways
10 that individuals could be exposed to radiation, commonly
11 referred to as exposure pathways.
12 When we look at Yucca Mountain, the most likely
13 path for radionuclides to be released is through the ground
14 water. So we're interested in ways people could be exposed
15 through ground water.
16 In our regulation, we have identified a farming
17 community. The reason for that is a farming lifestyle
18 involves a large use of ground water. Ground water could be
19 used for drinking, irrigation of crops, watering of
20 livestock.
21 So it would have multiple exposure pathways, from
22 drinking contaminated water, in contaminated crops, and
23 ingestion of animal products, milk, for example.
24 Now, the question is, you have to make a lot of
25 assumptions in doing this estimate of dose. These

1 calculations are carried out for a performance period of
2 10,000 years. Thousands of years from now, it's quite
3 speculative as to what people are doing, where they will be.
4 We've selected this farming lifestyle because it
5 captures a broad net of different exposure pathways. Where
6 will this farming lifestyle be? We've identified a location
7 approximately 12 miles from the site. Currently, most of
8 the farming in the area is in the 25-mile range. We've
9 selected a closer location because the soil conditions are
10 also appropriate for farming, and the depth to water is such
11 that it's not unreasonable that farming could exist there at
12 some future time.
13 Obviously, just doing the calculation, it's done
14 in the context of a performance assessment, a safety
15 assessment. In the safety assessment, we expect the DOE and
16 require them to not just look at what can be expected, but
17 what might go wrong during the operation of the facility.
18 We have them look at potential accidents that could occur
19 during the emplacement of waste.
20 In the long-term performance, the NRC has a term,
21 disruptive events, that's to capture things like seismic
22 events, fault movement, potential for volcanoes. These are
23 things that could disrupt the repository at a later date.
24 These types of conditions need to be evaluated and
25 determine what their impact is on the individual dose.

1 Obviously, these analyses, these safety
2 assessments are very dependent on the assumptions made.
3 They're only on the assumptions made. There is a limited
4 amount of data at this time. The regulations recognize that
5 information is still being collected and will be learned as
6 time goes on.
7 If a construction authorization is granted to DOE,
8 there will be information that's learned as they construct
9 the repository. If they get a license to implace waste, as
10 waste is implaced, we'll learn additional things, also.
11 There is a requirement to update these analyses as
12 information comes in during this process. The analyses must
13 be updated to ensure that these assumptions that have been
14 made are still true.
15 That being said, there also is another measure.
16 DOE is required to monitor the repository, especially ground
17 water, to look, as things proceed, are the conditions at the
18 site, is the behavior of the waste containers that have been
19 implaced, are they behaving the way we have assumed in our
20 analysis. If they're not, once again, these analyses will
21 be updated.
22 However, as I pointed out initially, that's the
23 safety assessment. There are other measures that need to be
24 done by the DOE to ensure safety. We want DOE to be
25 prepared. First and foremost, if they're granted

1 construction authorization and a license to implace waste,
2 we require that the personnel be trained, certified and
3 requalified to make sure that safety is a top priority for
4 all workers at the Yucca Mountain site.
5 Additionally, DOE needs to be prepared for the
6 unexpected. We don't anticipate to have accidents, but
7 accidents sometimes happen. Emergency plans are required in
8 the event that there is a radiological release.
9 And, finally, once again, we have the option, as
10 Jan mentioned, for waste retrieval for a time period as a
11 repository is being -- as waste is being put into the
12 repository and for approximately, as we have in the rule
13 now, 50 years afterwards, you have the option for waste
14 retrieval. If anything happens that suggests that waste
15 can't be safely stored in Yucca Mountain during this time
16 period, the waste would be removed. That's for the
17 operations.
18 Now we get into the long-term behavior of the
19 repository and DOE is required to provide continued
20 oversight of the repository. This can take a number of
21 measures. DOE is required to control the land in the area
22 around Yucca Mountain to ensure that the public is
23 protected. Permanent markers are required. The
24 preservation of records is also required to make sure that
25 future generations know what is stored or disposed of at

1 Yucca Mountain.

2 Also, once again, repository must be monitored,
3 especially the ground water pathway. We want to make sure
4 any releases are within the limits and the public is still
5 protected over the long term of the repository.

6 Finally, there is what the NRC calls license
7 conditions. Once again, as with the safety assessment,
8 we'll be learning more and more about the repository, the
9 way it behaves over time.

10 The NRC has the ability to add additional
11 requirements on the DOE, what we call license conditions, as
12 information progresses. If there are things we learn over
13 the construction, waste emplacement, et cetera, that we feel
14 needs to be done in addition to whatever requirements are
15 currently in the regulation, we will apply these additional
16 license conditions.

17 So as I said, there's three main areas for
18 requirements. The safety evaluation, the plans and
19 procedures during the operational phase of the repository,
20 and the long-term oversight of the repository.

21 What will the NRC do? NRC has three main
22 functions. We will review what DOE does, we will inspect
23 what they do, and we will enforce the terms of the license.

24 When we review DOE's license application, a lot
25 has been said about the performance assessment, the

1 calculations that DOE will do, there's two ways we'll do
2 this. We won't just look at what DOE has done, but we have
3 built up a fairly strong performance assessment capability
4 at the NRC and the Center for Nuclear Waste Regulatory
5 Analyses.
6 We will do our own independent calculations to
7 verify, in our mind, that these analyses are correct, that
8 these analyses protect public health and safety.
9 Additionally, we will review DOE's plans and
10 procedures for the operations of the repository. But that's
11 not good enough either. We will inspect, we will go out
12 there and assure that these procedures are being implemented
13 and we will enforce these regulations as needed.
14 How can the public help? We're here tonight to
15 listen to your comments and suggestions. We believe what we
16 put in place in Part 63 of what we've proposed is protective
17 of public health and safety. Have we thought of everything?
18 Have we written it in the clearest way so it's quite evident
19 what DOE is required to do and the public is protected?
20 That's where we're seeking comments and suggestions from you
21 people.
22 Are there additional measures we can provide? Are
23 there different ways to say things? And obviously, as Bill
24 suggested, we are going to be here at other meetings. The
25 way to help us is to continue your participation and your

1 suggestions.

2 Thank you.

3 MR. CAMERON: Okay. Bill Pilascony has a question

4 to start us off, and I think that probably is good right

5 there. All right. Bill?

6 MR. PILASCONY: First of all, I'd like to get my

7 understandings down from what's been said tonight. DOE's

8 site characterization, viability assessment, EIS, go on to

9 licensing, and they're looked after by the Nuclear Waste

10 Technical Review Board that was created by Congress and

11 their purpose is to evaluate the technical and scientific

12 validity of activities undertaken by the DOE in its program

13 for managing the disposal of the nation's commercial spent

14 fuel and Defense high level waste.

15 NRC is setting the regulations, health-based, a

16 safety objective repository, and then EPA sets the standards

17 for the public health and safety, and both are based upon

18 and consistent with the National Academy of Sciences'

19 findings and recommendations.

20 Now, do I got that all in the right direction?

21 Thank you.

22 My question is this, and you left it open for me.

23 I'm glad you gave me this agenda to write on. Measures for

24 continued oversight, safety, one of the NRC's technical

25 criterias is time during which waste can be retrieved.

1 Now, you know, I talk to a lot of folks around
2 Nevada and some of them are ranchers, some are miners, some
3 are business people, but one of the biggest things that
4 stands in the way of successfully constructing and operating
5 Yucca Mountain is the fact that we're looking at a
6 timeframe, even though it's tentative, for a 50-year span.
7 Now, you can talk to Lake Barrett and Russ Darr
8 and you can ask them what would be wrong with 300 years
9 retrievability. See, I'm one that gives my school system a
10 little more credit. EPA, Nuclear Regulation Commission, and
11 the DOE are constructing a nuclear waste repository with
12 today's knowledge, with today's technological advances.
13 In 300 years, I believe our educational system may
14 provide us with a lot better answers. What's wrong with
15 knowing how much water is in a repository, what the
16 temperature is? What's wrong with monitoring it to the
17 point where, if there's a problem, you have retrievability?
18 And one more item I'd like to add to that is, you
19 know, this old boy ain't convinced that coal is going to
20 last forever, that oil is going to last forever. In the
21 early '60s, they said we're going to go to 2060 and start
22 running out of some of this. Yucca Mountain, maybe we
23 should use the word stewardship, because one of these days,
24 Yucca Mountain may become a very important part of our
25 economy for energy.

1 And I'm tired of hearing about the 10,000 years
2 and cows and eating grass out there. Ten thousand years?
3 If you study ice ages, we're going to have some ice ages and
4 everybody is going to be moving down that way anyhow.
5 MR. CAMERON: Okay. Thank you very much, Bill.
6 Whoever wants to address that, and I take it that Tim is
7 going to talk about the retrievability issue, correct?
8 MR. McCARTIN: Sure. A couple things. One, the
9 50 years, in our regulation, is put -- we thought that was a
10 reasonable minimum time and we certainly are open to comment
11 on whether that's a reasonable minimum time. Nothing
12 precludes DOE from going for -- for putting in a license
13 application for a longer time period for retrievability, but
14 that 50 years was a minimum and if people have comments,
15 we're welcome to hear on that.
16 I don't know if that is sufficient. In terms of
17 the 10,000 years and the farming community that we have,
18 there is no question that there is a lot of speculation.
19 What's going to be there 100 years from now is hard to say.
20 We needed to select something that would be
21 protective and when we looked at what's going on currently
22 in this area, there is farming going on. Farming uses a lot
23 of ground water. Farming uses a lot of what is called
24 exposure pathways. We felt that would be protective, and
25 that's the primary reason.

1 We aren't suggesting that we have a crystal ball
2 and we know 10,000 years from now there would be a dairy
3 farm 12 miles from Yucca Mountain. But it is a measure that
4 we believe is protective, that if it meets that particular
5 requirement for that particular group, it would protect all
6 others.
7 MR. CAMERON: Okay. Let's go over to this side.
8 MS. ZOLKOVER: Adrian again. I'm a worrier and I
9 wrote a paper about this subject and I would like to quote
10 Luther J. Carter and Thomas H. Pickford, Professor of
11 Nuclear Engineering, in their article, "Getting Yucca
12 Mountain Right," from the Bulletin of Atomic Scientists,
13 March-April, 1998.
14 They say, this is a direct quote, "Pending
15 Congressional legislation reaffirms the inflexible,
16 counter-productive commitment to a fixed licensing schedule.
17 The House bill would direct the Energy Department to have,
18 build and license a repository that would begin operations
19 by January 17, 2010. Building a repository is much more
20 than a matter of building tunnels and waste emplacement
21 drifts and installing the necessary waste handling
22 equipment.
23 Rather, the problem is to design and create,
24 through iterative changes that could take decades, a system
25 of containment capable of meeting rigorous standards of

1 safety over many tens of thousands of years.

2 In this article, they go on to say, "Why do we

3 have to do it now? We have a design. Wait. See what

4 happens." The earthquakes, I was on my computer today, in

5 Mexico, there are thousands of aftershocks. They show the

6 fault, the Pacific plate is shaking, and the other plate

7 that's not the floating plate is shaking. If the San

8 Andreas had an 8.3 that many experts say is overdue, I think

9 there would be hundreds of thousands of aftershocks; that

10 the water table is now approximately the length of a

11 football stadium away from where the tunnels are. With

12 hundreds of thousands of shaking, how do they know that

13 water table could not heighten to where the hot waste is?

14 Hot, I mean hot.

15 Someone told me that steam takes up 600 times the

16 amount of the water. If you have water heating up, you have

17 explosions, and not only that, the thermal -- the weather

18 patterns are changing and they don't necessarily call it

19 global warming. It can be patterns over billions of years.

20 I have a picture of two inches of snow in my yard

21 I had for a few days this last winter. I moved here after

22 the earthquakes in LA in '94 and it seems to me it has

23 rained as much here as in LA and I don't -- the experts say

24 the weather patterns may be significantly changing.

25 You could have earthquakes, you could have snow on

1 Yucca Mountain, and you could have that water table get to
2 that hot, hot stuff.
3 MR. CAMERON: Thank you, Adrian. Tim, do you want
4 to just talk about want you called the disruptive events and
5 how NRC is going to look at the types of things that Adrian
6 is talking about?
7 MR. McCARTIN: Certainly. The safety assessment
8 needs to include the things that could happen, that could go
9 wrong. Some things -- we expect the climate to get cooler
10 and wetter in Nevada over the next 10,000 years. The
11 Department of Energy has also included analyses that include
12 a cooler, wetter Yucca Mountain and its effect on the
13 repository's performance.
14 Also, other -- seismicity obviously occurs at the
15 site. That has to be analyzed. There are things that could
16 cause rock fall, a seismic event would do some rock fall,
17 the damages to the waste container, these kinds of things
18 need to be analyzed.
19 We would expect a comprehensive analysis that
20 looks at many things.
21 MS. ZOLKOVER: So your answer could say or you
22 could say you've done fine, now we're going to stop and
23 wait. That is an option you have to do, correct?
24 MR. McCARTIN: I'm not sure what you mean by stop
25 and wait.

1 MS. ZOLKOVER: Well, just wait and see.

2 MR. CAMERON: Could you try to rephrase Adrian's
3 question or statement in your answer?

4 MR. REAMER: I think the date that you reference
5 from the article, the 2010 date, that date does not prevent
6 any issue from being addressed and resolved. That date is
7 subordinate. It's beneath -- it's not as important as
8 protecting the public and analyzing the issues.

9 If the issues have not been analyzed and resolved
10 by that date, then waste will not be brought to the site.

11 MR. CAMERON: Okay. Thank you. Dr. Chase had a
12 question that we asked him to defer until now.

13 DR. CHASE: Thank you. Again, now, with respect
14 to that young lady who just read what she did, there is a
15 question that seems to hang in the air that no one likes to
16 address it.

17 For example, why bury the waste? Why not use it?
18 I have two books here I picked up today on your counter out
19 front. It has to do with the applications of transmutations
20 of products from the waste. I don't like to call it waste
21 either. How can you call it waste? It's a very valuable
22 natural resource.

23 Every atomic weapon in the United States arsenal
24 is fired by a -- let me call it a -- let me just call it by
25 a product that comes from spent nuclear fuel.

1 Why do you call it waste? That's the first thing.
2 Secondly, as she pointed out, if you could somehow
3 track science, 30 years ago, it was a darn good idea. DOE
4 made the right decision. Let's bury it and forget it, you
5 know, out of sight, out of mind. But since that time, we
6 have found that that's not true. It doesn't work that way.
7 We hear this young man talking about all kinds of safety
8 regulations. He's worried about the health and safety of
9 people.
10 If that's the case, let's take a look at that.
11 How can we avoid the threat to the health and safety of
12 people? Why bury the waste? Why not use it?
13 It's page after page here of industrial
14 applications, medical applications, everyday applications.
15 There are gym -- one I know of that I always use, there is a
16 gymnasium resin that, when irradiated, makes a beautiful
17 surface for a gym floor.
18 Who would ever think of such a thing? But it can
19 be used. It can be. We don't have to bury that.
20 So why don't we, in addition, launch a parallel
21 study? NRC would be perfect for it, I know NRC pretty well.
22 A parallel study on whether or not it's feasible, not
23 economically feasible, because we all understand that this
24 is going to cost money, but the feasibility sense I would
25 like to see is will this make the -- will this -- doing

1 this, will this protect the health and safety of the public,
2 period.
3 If the answer is, if we don't bury it, the chances
4 of protecting the health and safety of the public is great.
5 Well, let's do something about it.
6 If it turns out that the two accelerators that the
7 Secretary of -- the good Secretary, Mr. Richardson, is now
8 going to build two and over here at Los Alamos, they're
9 going to be doing, I understand, the basic research. It
10 seems incredible to me that here, where the health and
11 safety of the public, its water and its air and everything
12 else, is at risk and it's going to be at a greater risk, I
13 understand, because the original 70,000 tons has now grown
14 to 150,000 tons, and really, have you considered that, too,
15 in your calculations.
16 I mean, what I'm really trying to say to you is,
17 has science advanced to the point where we can forget about
18 the old hazards and look at applying science to don't bury
19 this stuff, use it? That's all I'm asking.
20 MR. CAMERON: Thank you. And I guess that sort of
21 is in the same vein of the statement that Bill Pilascony
22 made earlier. Any comment on that?
23 MR. REAMER: And we recognize that these are
24 statements that others have made, that the material can be
25 used and it's useful, but the fact remains that the Congress

1 has passed a law that directs, first, the Department of
2 Energy to characterize a site and to make a recommendation
3 on whether that site can be used to dispose of spent fuel
4 and it's directed the Nuclear Regulatory Commission to
5 review and objectively evaluate an application for a
6 license.
7 So the law certainly could be changed, but the law
8 that exists right now directs the policy of the United
9 States to dispose of spent fuel.
10 MR. CAMERON: Thank you, Bill. We're going to go
11 this gentleman here and then we're going to go to Mary
12 Manning, and then to John Wells. State your name and
13 affiliation.
14 MR. AVERY: Russell Avery, Las Vegas, Nevada.
15 Tonight, we've learned a lot in the last ten or 15 years and
16 in a period of time, the 55 years, have been working with
17 atomic Energy since 1945, we have found that this is a short
18 period of time, in 10,000 years, when we compare that.
19 The accuracy of some of the assumptions, we're not
20 sure what the accuracy of some of the assumptions are.
21 They're accurate within one 10,000th of a percent, that we
22 could predict within one percent of 10,000 years, we would
23 have some kind of accuracy there.
24 But this is something that's going to be
25 constantly changing in a 55-year period of time.

1 So have we really explored what type of energy
2 that we could use rather than fissional energy that we've
3 been using in the process in the last 55 years? That we now
4 have to have depositories throughout the country. This is
5 the problem we're facing here today.
6 Now, isn't there better sources of energy to use
7 than the fissional method? We should investigate this and
8 we're only a short period of time of study.
9 I could go on and ask other questions, but I know
10 we have to expedite our time here tonight. But these are
11 some of the real questions, I think, that's coming out to be
12 considered.
13 MR. CAMERON: Thank you very much, Mr. Avery, for
14 those comments. Let's go to Mary, and then we're going to
15 go to John Wells, and we have a couple other questions, and
16 then I think we're going to move on eventually.
17 MS. MANNING: I'm Mary Manning. I'm a reporter
18 with the Las Vegas Sun newspaper, and I don't usually ask
19 questions, but I've heard a lot about resolution of
20 problems. Let's assume that Yucca Mountain is licensed.
21 Let's assume Yucca Mountain accepts wastes.
22 What will the NRC do if something happens? In
23 other words, are you going to set criteria to close the
24 repository if something goes wrong and what are those
25 criteria going to be and what are they going to be based on?

1 MR. CAMERON: All right. That's a good question.
2 Who would like to handle that? And keep in mind that there
3 were a couple of big assumptions stated there; that the
4 repository would be licensed, that something would go wrong,
5 what happens in terms of the NRC taking action, Tim?
6 MR. McCARTIN: Well, during the retrieval period,
7 if something goes wrong that shows that waste cannot be
8 disposed of safely at Yucca Mountain, the waste will be
9 removed. Where will it go? At this time, I can't give you
10 that answer.
11 It won't go to Yucca Mountain. It will be
12 removed. DOE will have to find an alternative place.
13 MR. CAMERON: Okay. Let's not have a -- let's let
14 him finish his statement. Go ahead. Tim, finish your
15 statement. Or are you done?
16 MR. McCARTIN: That was it.
17 MR. CAMERON: Janet, are you --
18 DR. KOTRA: I just wanted to expand upon that in
19 that we have in place and would attempt, with the new
20 regulations, to continue a step-wise process, where,
21 throughout this process, as new information becomes
22 available, we are continually testing the validity of the
23 assumptions the Department has put forward and examining
24 that to make sure that the health and safety criteria are
25 met.

1 If at any time during that process we are
2 persuaded that a step should not go forward because those
3 criteria are not complied with, we would not accede to
4 moving forward to the next step.
5 You have asked, the repository has been
6 constructed, it is receiving waste, and is implacing waste,
7 and in the course of that something has gone wrong. We have
8 the capability and, more importantly, the obligation to
9 condition the license to stop whatever is going wrong, if
10 that's possible, and if that's not possible, then to take
11 steps, as Tim indicated, to remove the waste to a temporary
12 storage solution, which is where we are right now, and
13 ensure the safety, in the near term, while we examine the
14 options.
15 And, of course, given that this is, as Bill
16 indicated, a reflection of national policy to pursue
17 disposal, that information would have to go back to the
18 Congress ultimately, if another solution is necessary to be
19 pursued.
20 I don't think that the NRC necessarily has to be
21 an advocate of any particular source of energy or any
22 particular disposal option. Our obligation is under our
23 authority to ensure that what the national policy is is
24 carried out safely, consistent with protection of public
25 health and safety, which is our mission.

1 MR. CAMERON: Thanks for that clarification,
2 Janet. We're going to go to John Wells and take a couple of
3 other people, and then I think we'll have to move on. John?
4 MR. WELLS: Thank you, Chip. My name is John
5 Wells. I'm the Southern Representative to the Western
6 Shoshone National Council.
7 I am here, again, to address the legitimacy of the
8 United States to site and regulate high level nuclear waste
9 at Yucca Mountain, within the borders of the Western
10 Shoshone Nation.
11 The United States recognized the Western Shoshone
12 Nation as a sovereign state through the treaty of Ruby
13 Valley in 1863, a treaty that US Courts have acknowledged to
14 be in full force and effect.
15 This treaty grants specific privileges to the
16 United States in exchange for safe passage of US citizens
17 through our territory and monetary compensation to the
18 Western Shoshone for the inconvenience of the loss of game
19 along travel routes.
20 These treaty privileges include the establishment
21 of military posts and station houses, the right of passage
22 for a telegraph, stage lines, and the construction of a
23 transcontinental railroad, to mine precious metals and other
24 minerals, and the establishment of agricultural settlements
25 and ranches.

1 The right to test weapons of mass destruction or
2 to store high level nuclear waste is not mentioned and,
3 therefore, not allowed.
4 In violation of this treaty, the United States and
5 the United Kingdom have transported weapons into our
6 territory and exploded them without our consent.
7 The legitimate authority to regulate all
8 activities at Yucca Mountain rests with the Western Shoshone
9 Government and it is the position of the Western Shoshone
10 National Council that all activities conducted by the United
11 States and its allies not within the specific privileges
12 granted by the Treaty of Ruby Valley constitute trespass and
13 a violation of Western Shoshone sovereignty.
14 We are troubled by what we feel is the creation or
15 transformation of our culture from one of protecting the
16 environment to being one of stewards of US commercial high
17 level nuclear waste. The benefits go to the waste
18 generators and we get the waste and the risks.
19 Why should we accept or be forced to accept the
20 risks?
21 Thank you.
22 MR. CAMERON: Thank you very much, John. We're
23 going to go over to Susan.
24 MS. ZIMMERMAN: I want to sort of make a couple of
25 points on the talk by Janet on why you developed 10 CFR 63

1 at this time. One question I have, to start out, is, was
2 there any legislation that was enacted that mandated the NRC
3 to formulate 10 CFR 63 or was it demands by certain people
4 in Congress to do that?
5 DR. KOTRA: I guess the short answer is neither.
6 The law requires us to conform our criteria, period, to a
7 health-based standard that EPA would issue, as I indicated.
8 It is entirely up to NRC how it could best
9 accomplish that and the decision was taken as a policy
10 decision by the Commission that it would develop
11 site-specific regulations to implement a site-specific
12 standard that differed from its safety strategy than what
13 had existed either in EPA standards or in NRC regulations
14 prior to that.
15 That was a policy call taken by the Commission,
16 but no, the legislation did not specifically address that.
17 It just required that the Nuclear Regulatory Commission's
18 criteria be consistent with an overall health and safety
19 standard for Yucca Mountain that was based on and consistent
20 with the National Academy of Sciences' recommendation.
21 MS. ZIMMERMAN: Okay. My second question is --
22 and I'm just -- I'm trying to remember if I heard you
23 correctly in your talk, that part of the criteria that you
24 use to determine when you developed 10 CFR 63 was that DOE
25 had given out their schedule and you saw how rigorous it was

1 and aggressive and that played a role in NRC deciding to go
2 ahead and develop 10 CFR 63.
3 Did I hear that correctly?
4 DR. KOTRA: Yes. The statement -- then
5 observation was made in the policy papers that were
6 developed to support the Commission's decision on this
7 matter that recognized that the department was pursuing an
8 aggressive schedule.
9 I think its important to put that in the context
10 of the program is moving forward without, at that time,
11 without -- without either health and safety standards or an
12 implementing regulation in place, or, for that matter, even
13 some indication of what the principal regulators think about
14 as important.
15 And we felt, at the staff level and the Commission
16 agreed, that it was important to get our thinking on how to
17 pursue this different safety strategy that the Congress had
18 given us into the public domain early so that the criteria
19 would be out there at least in a proposed form that we would
20 use and we could improve those and put out the best possible
21 standards in a timely manner, and that that regulatory
22 structure would inform our pre-licensing interactions with
23 the department and would also make it possible for the
24 public to say, well, how are you going to meet these
25 criteria that the Commission are considering and get -- to

1 be able to formulate more specific questions in light of
2 what the regulatory criteria would be.
3 So, yes, there is an aggressive schedule that is
4 recognized in the department's repository site
5 characterization, but the intent was not just to satisfy
6 that schedule, but to provide a basis for a broader audience
7 to know what the regulatory requirements would be.
8 MS. ZIMMERMAN: Okay. So I guess my reaction to
9 that would be given that there is no actual law mandating
10 that you do -- that you issue 10 CFR 63 or even start
11 promulgating it because there is no -- you know, EPA has not
12 done their job.
13 And given that DOE's aggressive schedule played a
14 role in this, the perception is that the NRC is reacting to
15 DOE's aggressive schedule and you're basically throwing this
16 out there so they have something to aim at and you're giving
17 a standard, a dose standard that, in all probability, will
18 have to be changed.
19 At a minimum, there is no reason for the NRC to
20 issue any type of dose standard. You could have left that
21 out totally and, say, waiting for EPA.
22 It's just the public perception is that you're
23 basically becoming an advocate for DOE as opposed to a
24 regulator.
25 MR. REAMER: Well, I'd like to say that we are not

1 an advocate for DOE and if we leave that impression tonight,
2 then we're not doing our job. We are not advocates for DOE.
3 MR. CAMERON: I guess the implication was that the
4 actions sometimes give the perception of that. Is that
5 correct, what you were saying?
6 MS. ZIMMERMAN: Yes.
7 MR. CAMERON: All right. We're going to go to
8 Rick Nielsen here for last questions on this segment, and
9 then we're going to bring up Keith and Aby to begin. So,
10 Rick, go ahead.
11 MR. NIELSEN: We've been talking a lot about the
12 EPA standards. I had some questions, one of them being --
13 this is, of course, more an observation than a question,
14 that there was a bill that passed the Senate, the National
15 Resources Committee, that would allow -- would cancel out
16 the question of a storage bill in exchange for NRC setting a
17 new radiation standard instead of the EPA.
18 So this whole discussion about the EPA standard
19 could potentially be moot. I know it's a long ways for the
20 committee in the Senate to be law, but how would that -- how
21 would the NRC feel being put in that position of having to
22 develop a separate standard?
23 DR. KOTRA: I'm going to let Bill answer some of
24 that, but before I turn it over to him, let me just add
25 additional response to the previous question, which also is

1 related to the sense I get of your question.

2 That is, first of all, it is our intent, continues

3 to be our intent to implement final EPA standards, as the

4 law requires. We believe we've proposed a regulatory

5 framework in Part 63 that would allow for that. And

6 irrespective of what the safety level is for the overall

7 objective, there has been a lot of implementing requirements

8 that are the same, regardless of where that standard

9 ultimately comes out.

10 So if it's necessary, we will go back and modify

11 our requirements after the fact. That's doable in the

12 context of this proposal. We are committed to do that.

13 With regard to the proposed legislation, which, as

14 you've correctly acknowledged, is a long way away from being

15 law, we have proposed what we believe is protective of

16 public health and safety, consistent with our broad

17 responsibilities in that regard in this proposal.

18 Clearly, if we were given that responsibility, we

19 would carry it out as we have indicated in our proposal,

20 subject to changes and improvements that we will make

21 subject to comments we receive.

22 MR. CAMERON: Rick, you have another question?

23 MR. NIELSEN: Just a couple of follow-up here.

24 Seeing this same issue, you've said you've been

25 communicating on a close basis with EPA. I'd like to know

1 if you could explain to me and to the audience why there is
2 a difference.
3 I've heard, you may not, but I have heard that --
4 and in include broader standards. I'm wondering what is the
5 difference in the thinking between the 25 milligram standard
6 and EPA with their 15 standard.
7 DR. KOTRA: I think I'd like to give Tim an
8 opportunity to address that after I'm done. What I'll say
9 shortly is we have interacted. I would not say closely, but
10 we have provided opportunities for the EPA to take advantage
11 of our technical expertise. We have recommended in the
12 proposal and used as a placeholder in our own regulation
13 that which we believe is a safe, a protective level.
14 Aby is going to speak to the basis, the technical
15 basis for that judgment, and EPA has reached a different
16 conclusion or is considering a different conclusion. They
17 have not proposed anything at this point.
18 And I think I'll turn that over to Tim to expand.
19 MR. McCARTIN: As we've mentioned before, we
20 believe the 25 milligram standard, which is all pathway
21 standard, and especially for Yucca Mountain, where the
22 ground water pathway is anticipated to be the most likely
23 pathway for release of radionuclides, the all pathways
24 standard protects ground water.
25 Now, you're right, in terms of other applications,

1 EPA has required a separate ground water protection
2 standard. The Commission has opposed that in other areas
3 that NRC regulates, such as low level waste and
4 decommissioning standards.
5 In terms of what is available for the high level
6 waste standard, it is not available. So I can't comment on
7 something that's not there.
8 MR. CAMERON: Okay. Could we wrap this up?
9 MR. NIELSEN: Just a couple more points here. I
10 was partaking in a hearing yesterday regarding property
11 rights application, additional appropriation for Yucca
12 Mountain, and one of the issues that is being dealt with,
13 whether or not it's going to be an issue in the case, is the
14 contamination of ground water.
15 The statements were made that DOE has more or less
16 openly admitted and alluded to the fact that in their waste
17 management strategy, the aquifer is one of their methods of
18 waste management strategy. Essentially, they did not allow
19 that to be considered in the case. He felt the reason that
20 he ruled that way is because it was not his jurisdiction and
21 if it was not in conformance, whether that should be made an
22 issue.
23 So I just wanted to point out and let you know
24 that if, in fact, the responsibility of setting a standard
25 is -- somehow falls on the NRC, falls in the NRC's lap, then

1 I would like to let you know that -- that it's very
2 important that you consider a standard for contamination of
3 the aquifer and not just do an all pathways standard.
4 So I'd like to point that out.
5 Then I had one last thing to let you know. How do
6 you define the difference of what is an acceptable risk
7 versus not an acceptable risk? In your slide, you said one
8 single pathway of exposure would be ground water, and that's
9 not an acceptable risk.
10 How do you define that risk separately?
11 MR. CAMERON: You saved the easy one for last,
12 right?
13 DR. KOTRA: I'll give you the short answer. I
14 think in the next panel, we'll have a little bit more
15 expanded discussion on that. The short answer is on the
16 same basis that we make that judgment in the context of
17 everything else that NRC is responsible for licensing, based
18 upon consistency with international bodies, advisory bodies
19 on radiation health and safety protection, consistent with
20 what we believe is protective and is a prudent allocation,
21 if you will, of the overall public health and safety limit
22 for various practices.
23 We believe that this proposal meets that test,
24 that's why we've proposed it. But it is not out of the
25 blue. It is in the context of a regulatory philosophy,

1 strategy and history that is consistent with our
2 responsibilities for regulating civilian uses of radioactive
3 material.
4 MR. CAMERON: Thanks, Janet. And I apologize that
5 we need to move to our next panel, but the NRC will -- staff
6 will be here for questions later and we will have a wrap-up
7 segment.
8 Could we have Aby and Keith come up to the table
9 to make their presentations?
10 And as several speakers noted, one of the issues
11 that came up the last time we were out here was how do the
12 NRC regulations protect infants and children. And we have
13 Aby Mohseni with us from the NRC staff. He works directly
14 for the Director of the Office of Nuclear Materials Safety
15 and Safeguards.
16 Aby has a Master's degree in Nuclear Engineering
17 and he's also worked as a health physicist for the State of
18 Washington and he's going to talk about infants and
19 children.
20 Aby?
21 MR. MOHSENI: Thank you very much. I appreciate
22 the opportunity to be here today and listen more carefully
23 to the specific concerns raised on this item.
24 I might add the reason I am here is because of the
25 issue that was raised last time in the public meetings and

1 this came along with other NRC experts discussed the issues
2 extensively. And we would like to give you a little bit
3 more background on the basis of the NRC regulations in that
4 regard and receive from you, hopefully, more refined
5 concerns so that we can actually go back and address it as
6 best as we can.
7 The issue that was raised last time was whether or
8 not infants and children are adequately protected with the
9 language that is in the proposed rule, Part 63, specifically
10 speaking.
11 First, let me tell you that my slide, I have one
12 slide and in your package, you have two slides, but I have
13 condensed that information into one.
14 So most of the information on my slide does appear
15 in your package.
16 The answer to the question, will NRC regulations
17 protect infants and children, as well as adults, is yes.
18 There is no question about that. We would not be doing our
19 job if we were unable to protect a segment of the
20 population, the most dear to all of us, children and
21 infants. So the answer is yes.
22 The question is whether or not we can convince the
23 public that indeed the proposed regulations do that.
24 The NRC regulations or standards, if you will,
25 were not generated for Part 63. Historically, international

1 bodies and national bodies, non-government bodies of experts
2 have historically developed recommendations on standards in
3 radiation protection for the public.
4 The Nuclear Regulatory Commission has its own
5 expertise and has reviewed those standards and has adopted
6 those standards. Those standards are subject to peer review
7 nationally and internationally, and we did not invent the
8 standards for Part 63. They were there before Part 63 was
9 born.
10 Regulating radioactive material, the question was
11 valid for all activities related to radioactive material,
12 not just the waste disposal.
13 So yes, indeed, the NRC regulations do protect
14 infants and children.
15 The standards historically have been developed on
16 a lifetime exposure to radioactive material, not on a single
17 exposure of short duration type of exposure, but a lifetime,
18 continuous exposure to low level -- to low levels of
19 radiation. And those standards or recommendations that have
20 come out of the international bodies were adopted.
21 And in Part 63, the proposed number is a fraction
22 of that. So, therefore, all the benefits and all the
23 history and all the background and all the foundation that
24 has gone into the standards are inherently included in the
25 fraction of that number.

1 And I want to emphasize that this is a proposed
2 standard to assess performance and you have to have a number
3 or a standard out there so that you can evaluate the
4 adequacy of a system. This does not mean that once a system
5 has demonstrated that under all the conditions that my
6 colleagues explained, disturbed conditions and variations
7 and all the speculations and the assumptions that have gone
8 into it, if a system meets the standard, it does not mean
9 that an individual who lives at the boundary of the system
10 will receive 25 millirem or whatever that standard is every
11 year for the rest of his or her life. That's not the way it
12 has been shown in the past when we have applied standards in
13 licensing.
14 Usually, the standards that have been implemented,
15 when all was said and done, the actual exposure that the
16 public has received was a very small fraction of those
17 standards.
18 The expectations are, a colleague of mine gave me
19 a good analogy and I want to offer it to you, it's like we
20 were trying to estimate the number of chairs in this room.
21 We had to include an acceptable number of chairs above and
22 beyond the need, so that we have adequate margin, just in
23 case more people showed up.
24 It does not mean that every single presentation we
25 have was short on chairs and we don't do anything about it

1 and that we're always on the last number. Are we going to
2 have enough people or enough chairs for all the people that
3 will show up? That was an analogy to show that the standard
4 is always higher than what the actual exposure levels are to
5 the members of the public.
6 In this particular scenario, it's even more
7 certain that you are not going to get anything close to the
8 standard for decades, maybe more, maybe much more, and there
9 are intervention levels, as my colleagues explained, of
10 being able to intervene. Should there be exposure levels
11 that are getting awfully close to the standard that would
12 make anybody, especially the regulators, nervous about the
13 kind of conditions that exist?
14 Just for your information, I'm sure most of you
15 have, especially the individuals who have raised this
16 concern, are familiar that the background radiation levels
17 are 12 times higher than the standard. Again, the standard
18 is not an indication of what the dose will be to the members
19 of the public. And yet the natural background is a reality.
20 The average member of the population is getting
21 that kind of exposure. And the standard is 1/12th of that
22 and only a fraction of it, at least in the areas that we
23 have been licensing, is all that has been incurred by the
24 members of the public. Hardly ever anything significantly
25 close to the standard has been observed on a continuous

1 basis, and we're talking continuous basis here.

2 And how do you measure compliance? This is where

3 I was discussing with Abigail, who had raised the question

4 earlier, in our earlier discussions, that the proposed

5 method of measuring compliance is put forth so that the

6 public reacts to it, so that you all look at how we intend

7 to use the best science available to measure compliance.

8 Again, remember, measuring compliance is doing

9 what my colleagues explained, all those scenarios, what if

10 there is a disturbance, all those assumptions have to be put

11 and then the critical group that was discussed earlier that

12 would be -- would likely get the highest exposures are going

13 to be used in our assumptions to see if they are adequately

14 protected, then, by definition, everybody else should be.

15 The proposal that has been put forth is consistent

16 with everything else we've done. So we did not have to

17 reinvent science, if you will, at least in the radiation

18 side. Maybe in other aspects, because of the period of

19 which the system has to remain a viable system, those are

20 aspects that are different and are being looked at very

21 carefully.

22 But in the radiation field, radiation science,

23 there is nothing new here that should make anybody nervous.

24 Right now, if you go to the doctor, the X-ray machines used

25 in the states are shielded to the doses that I discussed and

1 that's the way it is right now, and they are licensed to
2 operate at those levels everywhere in this country, pretty
3 much at that level.
4 So there is nothing new. There is nothing
5 distressing in terms of nuances that we should be careful
6 not to exceed.
7 And I want to really ask members, including
8 Abigail, to take the context that I offer and provide us
9 with more, if you will, more questions, more precise
10 questions, so that we can go back and look at and see if we
11 can add more value to what we have offered.
12 We're very open for that and that's why we're here
13 tonight.
14 Thank you.
15 MR. CAMERON: Thank you very much, Aby. We're
16 going to go to Keith McConnell for his presentation, and
17 then open it up for questions.
18 Keith has a Ph.D. in Geology. He is the section
19 leader in the high level waste branch that deals with
20 performance assessment and he is going to talk about the
21 multiple barrier concept. Keith?
22 MR. McCONNELL: Thanks, Chip. As Chip indicated,
23 I'm going to talk about our requirements for multiple
24 barriers in the proposed rule. As others have indicated,
25 these requirements were the focus of a number of comments

1 and questions from our meetings here last March.

2 Basically, what I'd like to do is try to better

3 explain and clarify what the requirements mean and the way

4 I'm going to approach it is to respond to three questions.

5 First, what is meant by multiple barriers when we

6 use it here at the NRC? Second, why is it important in the

7 Yucca Mountain program and DOE's efforts to develop a

8 repository at Yucca Mountain? And, third, how are these

9 requirements going to help ensure that the public health and

10 safety of the citizens of Nevada are protected?

11 What I'd like to do is move to the next slide, and

12 it's not in your package, but what it is is a simple diagram

13 to help illustrate what we mean by multiple barriers, and

14 what this is is a Russian doll, and hopefully you're

15 familiar with the Russian dolls. This is actually a

16 cross-section through one. But Russian dolls, if you're not

17 familiar, are wooden dolls that, when you open them up,

18 there is a smaller doll inside, and you continue on and it

19 gets smaller and smaller and so forth.

20 But basically, what this does is if you can

21 conceptualize this as a repository, with the spent nuclear

22 fuel on the inside, indicated by the radiation symbol, and

23 then the borders of each individual dolls as representing

24 individual barriers within a repository.

25 Basically, the first one, right next to the spent

1 nuclear fuel, could be considered the waste package, and
2 then the succeeding ones on the outside can be considered
3 the geology of the site or the rock layers that exist out
4 there.
5 Basically, again, showing that there are multiple
6 lines of defense or multiple barriers here to the release of
7 radionuclides from this repository and, in essence, through
8 this, you gain what we call at NRC defense-in-depth through
9 multiple barriers.
10 And in succeeding viewgraphs, I will be talking
11 about defense-in-depth, but it's this concept of
12 defense-in-depth through multiple barriers that we are
13 addressing in our requirements in the proposed rule.
14 So moving on. What is defense-in-depth and
15 multiple barriers, as NRC uses it? Well, it's a fundamental
16 part of our regulatory philosophy and our safety philosophy.
17 It's applied to all of our licensees, including nuclear
18 power plants. Those of you who are familiar with nuclear
19 power plants know that each of them contains a dome
20 structure over the reactor. That dome structure is part of
21 the defense-in-depth or multiple barrier concept that is
22 applied to civilian nuclear reactors.
23 Multiple barriers are, by design, used to
24 compensate for malfunctions or accidents or under-performing
25 parts of the system or barriers. If you remember back to

1 the Russian doll, if one barrier doesn't perform as expected
2 or as proposed by the Department, then there are other
3 barriers out there that would compensate for this
4 under-performing barrier.
5 Likewise, if there are earthquakes, as Adrian
6 pointed out, and it affects the rocks down at the site,
7 there are other barriers, as we understand it, that would
8 compensate for this effect on the rock at the site.
9 The bottom line in our regulations is that public
10 health and safety is not going to rely on a single barrier,
11 but it's going to rely on the composite system, composed of
12 both engineered barriers, such as the waste package, and the
13 geology of the site, the rocks and other aspects of the
14 geology out there.
15 Moving on to what DOE has to provide prior to
16 receiving a license. They have to, under our regulations,
17 identify the barriers, provide the demonstration of the
18 capability of those barriers to isolate waste, and provide
19 the data and engineering background that supports those
20 judgments. So the whole package has to be in a license
21 application to define defense-in-depth for a repository
22 system.
23 With that in mind, they have to rigorously
24 demonstrate that the facility is safe and that the facility
25 is safe through the use of multiple barriers, and they have

1 to show, again, that safety is relied on both engineering
2 and geology of the site.
3 Well, how will that information be evaluated?
4 There will be a thorough evaluation by the NRC staff and its
5 contractors at the Center for Nuclear Waste Regulatory
6 Analyses and, as other speakers have indicated, we have a
7 broad range of technical disciplines at the NRC and at the
8 Center and we're very capable, I think, of focusing our
9 review and making sure that the demonstration is complete
10 and accurate.
11 Also, as Bill has indicated, there will be a
12 number of opportunities -- on this topic, as well as any
13 other topic, with respect to the license application.
14 The bottom line on this is that based on the
15 demonstration that DOE makes of multiple barriers and our
16 review and evaluation of that, we can either grant or deny a
17 license application.
18 Now, basically, at the end of my presentation, I
19 want to address, I think, the main issue that was raised in
20 our prior meetings, and that is why we are changing our
21 approach to defense-in-depth and multiple barriers from that
22 which was developed 15 years ago.
23 There are a number of reasons why and perhaps the
24 foremost is that there have been new scientific
25 recommendations made, both by the National Academy of

1 Sciences and our own Advisory Committee on Nuclear Waste,
2 which told us that our approach that we developed 15 years
3 ago was not an effective approach for demonstrating multiple
4 barriers. They advised us to develop a new approach.
5 Also, over those 15 years, as anybody who has
6 bought a computer in the last ten years knows, there's been
7 quite a significant advancement in computational capability
8 and the ability to model various features of the site, and
9 these advancements have to be factored into how we evaluate
10 the performance of a repository.
11 Finally, in our approach that we developed 15
12 years ago, it didn't adequately address the issue of the
13 interactions between barriers and the analogy I would use is
14 that of a car engine and a radiator. If you're interested
15 in how the radiator works, it's probably most important to
16 have the engine running, and you want to know how the water
17 circulates and what the effect of heat is.
18 In a repository system, if you want to know what
19 the effect of the repository would be on the water and
20 rocks, you'd want to have the waste in there and consider
21 that as part of the equation.
22 In our requirements 15 years ago, we didn't
23 consider that context. And so in the new regulations or new
24 requirements that we've developed, we do consider the
25 interaction between barriers and we require DOE to evaluate

1 those interactions and we'll review what DOE proposes.

2 So I guess in summary, what I'd like to say is we

3 think our regulations or requirements for multiple barriers

4 in Part 63 are more effective and better than what we

5 proposed 15 years ago, but nothing is perfect and we're

6 here, as with other aspects of the review, to hear comments

7 on how we can improve the requirements for multiple

8 barriers.

9 Thank you.

10 MR. CAMERON: Thanks a lot, Keith and Aby. Let's

11 go on to the audience. Questions for Aby on the infants and

12 children or multiple barriers? Yes, sir.

13 MR. CLOQUET: Don Cloquet. As a former employee

14 of the nuclear industry, I kind of disagree with the fellow

15 sitting here on my right there in regards to dose rates.

16 You cannot have a person who -- a worker who is

17 down inside of a nuclear reactor working full suit-up, not

18 only that, extremities, in centimeters, prior to him doing

19 his work in the nuclear reactor, would tell me that a person

20 who is not involved in the nuclear work in a nuclear reactor

21 will have the same dose rate.

22 Thank you. Any reaction?

23 MR. MOHSENI: I wasn't able to actually hear very

24 well, because of the -- can you rephrase the question maybe

25 or the comment? Maybe it was just a comment.

1 MR. CAMERON: Okay. Will you talk to him? All
2 right. Do we have other questions out here on this?
3 Adrian? Adrian, hold on a second. If you use the
4 microphone, you may able to get on the transcript. Could
5 you hold on one second?
6 Are you going to ask a question to Aby on infants
7 and children or are you going to talk about multiple
8 barriers?
9 MS. ZOLKOVER: Multiple barriers.
10 MR. CAMERON: All right.
11 MS. ZOLKOVER: Glen Zorapet, in Scientific
12 America, May 1996, from Hanford's nuclear wasteland, says
13 that plutonium is extremely dangerous, a mere 27 micrograms
14 in the lung can bring about cancer. This is my own words.
15 A microgram is like a millionth of a 20th of a gram.
16 And in my own words, they want to take 11 tons of
17 plutonium and put it here. They also state, I'm quoting
18 them verbatim here, "From those early days of military and
19 technological glory, this was during World War II, the 1,450
20 square kilometer Hanford site has slowly devolved into a
21 nightmarish agglomeration of the contaminated facilities
22 that each consume tens of millions of dollars a year just to
23 be kept safe and stable."
24 And they -- I'm afraid that they want to dump more
25 here and that also the government should classify it. So

1 you might have it designed for a certain thing and once the
2 gates open, they come in and they say, well, this is
3 plutonium that has to be classified.
4 There is so much plutonium all over the world for
5 somebody that wants to do the wrong things with it, they
6 don't have to come here for it.
7 A minute amount for our weapons has to be
8 classified, but how can you guarantee that the government
9 won't take advantage and do things that you don't have in
10 mind and that we don't want? And I don't think people
11 realize the potential danger and hazard. There is more of
12 this stuff all over the world. They can't get rid of it.
13 It's a nightmare. We don't want it here. Nobody wants it
14 and there are other alternatives to putting them, like, at
15 Hanford, putting it with concrete, diluting it, and you
16 couldn't get near it, but it would be stable.
17 It would just leave it in blocks there in
18 concrete. There are other alternatives to doing things with
19 these things rather than just all of a sudden dumping it all
20 here.
21 MR. CAMERON: Thank you, Adrian. It seems that
22 there is a question in there about how will we know the
23 exact composition of the waste that's going to be disposed
24 of.
25 MR. McCONNELL: Yes. DOE is required to define

1 what they intend to put in the repository and put that in
2 their license application, and they then have to demonstrate
3 that it's safe, and we would evaluate that demonstration
4 knowing what's there, whether it's plutonium or spent
5 nuclear fuel or other defense waste.
6 And all of that, under these regulations, would be
7 open, would be open, as Bill indicated, for evaluation in
8 the licensing process.
9 MR. CAMERON: Thanks, Keith. Let's got to Abbie.
10 Yes, go ahead, Bill.
11 MR. REAMER: Just the additional point that
12 information cannot be classified by the Department of Energy
13 in a way that would prevent the Nuclear Regulatory
14 Commission from being able to review that information or in
15 a way that would prevent an individual with a need to know
16 for the information to see and understand the information.
17 MR. CAMERON: Thank you. Abbie?
18 MS. JOHNSON: I didn't have any choice. I had to
19 stand up and say something, didn't I? I have two comments
20 related to the infants and children discussion and maybe
21 they're going to turn into questions, I'm not sure.
22 Basically, the explanation that we've heard is
23 that children are included in the average population and I
24 think my comment is that that is one way of looking at it
25 and that another way of looking at it is that you look at

1 the most vulnerable people in the population and you set the
2 standard to them.
3 My second comment, actually, Keith said things
4 have changed from 15 years ago and so the old approach is no
5 longer effective, so we want to do the defense-in-depth
6 changes because the old approach is no longer effective.
7 I would take that philosophy and apply it to this
8 discussion of standards for children, that maybe the way
9 we've been looking at things is an old way of thinking and
10 that with the increasing vulnerabilities that we're seeing
11 in our environment, in all areas, increase in asthma, for
12 example, in children is becoming more pronounced, that we
13 need to have a change in our thinking and that it would be
14 appropriate, from a common sense citizen's point of view, to
15 start looking at protecting children and not just averaging
16 them in with the rest of the population, because children
17 are more vulnerable, and they are the future. And I would
18 like to hear that in these.
19 MR. CAMERON: Okay. And one thing that we will
20 put up on the board. I think the suggestion was is that the
21 proposed rule should fix it or alternative approaches to
22 protecting --
23 MS. ZIMMERMAN: Susan Zimmerman, State of Nevada's
24 Agency for Nuclear Projects. This is directed to Keith on
25 defense-in-depth.

1 The original definition of defense-in-depth from
2 DOE's 1980 final EIS dealt more with the concept that the
3 geologic barriers were supposed to supply the main barrier
4 to transport of radioactive waste once the repository
5 started leaking, and the waste package or the engineered
6 barriers were sort of a secondary barrier to prolong that
7 event from happening even further out.
8 Currently, from our understanding, DOE is relying
9 primarily on the waste package and their miracle alloy of
10 C-22 to have very long life spans and, therefore, keep the
11 waste from even getting out into the geologic media for a
12 100,000 years, 200,000 years. They've even hypothesized
13 750,000 years.
14 And their own data is indicating that once the
15 waste starts being transported by water out of the
16 repository, that there are indications of some very fast
17 pathways that could transport the radionuclides much less --
18 in much less time than the original thousand years that is
19 in 10 CFR 60.
20 Does that play a role at all in your definition of
21 defense-in-depth? Does DOE's concept, current concept of
22 depending mainly on the waste package, do you still consider
23 that defense-in-depth?
24 MR. McCONNELL: Depending on the waste package is
25 one part of defense-in-depth. I think as we indicated in

1 the viewgraph, the NRC will consider that they also have to
2 demonstrate that the natural system of geology, the rocks,
3 the water, also provide some contribution to the isolation
4 of waste, and there are factors like retardation and
5 dilution that do that.
6 And DOE has yet to finalize on where it's going to
7 place the emphasis, but what they have to do under these
8 requirements is identify those areas where there is going to
9 be emphasis, define what the capabilities are, and
10 thoroughly support that definition. That includes both the
11 C-22, the material of the waste package, as well as the
12 capability of the rock, the geology of the site.
13 So I guess to answer your question more directly,
14 it does play a factor into it, but there is flexibility for
15 DOE to decide which barriers it's going to rely on. They do
16 have to demonstrate that both the natural system and the
17 engineered system contribute to the waste isolation.
18 MS. ZIMMERMAN: Are you going to try to -- are you
19 going to have any quantitative criteria of how much the
20 waste package should supply and how much the geology should
21 supply or is it -- I mean, if it comes out -- I've seen some
22 data that 90 percent of the waste package and ten percent
23 the geology, would that be acceptable?
24 MR. McCONNELL: Well, what I can tell you is both
25 the National Academy of Sciences and the Advisory Committee

1 on Nuclear Waste recommended that we not assign specific
2 numerical goals to specific barriers. What we are looking
3 at is a holistic approach that they do have to define the
4 capabilities of each individual barrier, but not place
5 restrictions on a particular barrier on some numerical goal
6 that they have to meet, because, as the Academy put it, you
7 could end up, by requiring DOE to optimize one barrier, to
8 sub-optimize the entire repository system.
9 Again, it's the interaction between the barriers
10 that's key to understanding the system.
11 MR. CAMERON: Thank you. Let's move on to the
12 transportation issue and then if we need to come back to
13 some of these other issues, we will.
14 So, Rob, could you come up to the table, please?
15 Okay. We're going to switch gears a little bit and go from
16 implacing waste to transport of waste.
17 We have Rob Lewis with us. He is from the Spent
18 Fuel Projects Office at the Nuclear Regulatory Commission.
19 He has a Master's degree in Nuclear Engineering. I'll turn
20 it over to you, Rob.
21 MR. LEWIS: Thank you, Chip. Good evening,
22 everyone. As Chip said, I work in the Spent Fuel Projects
23 Office and we're the group -- we're a separate group from
24 the people that are developing the disposal rule inside of
25 NRC. We're the group that works on the safety of the

1 transporting all radioactive materials.

2 We also work on the storage of spent fuel, when

3 that storage occurs outside of the nuclear reactor.

4 I'll try not to use any acronyms, but I will say

5 DOT is Department of Transportation.

6 Tonight's meeting is about the new disposal

7 regulation that all the previous speakers have spoken to,

8 but at the last series of meetings in March, we recognized

9 that a lot of concerns existed regarding the transportation

10 question. So we have come tonight to help respond to some

11 of those.

12 But I'm also here for another reason. We are

13 doing some new things in transportation at NRC. There will

14 be some opportunities in the near future, particularly this

15 fall, for you to be heard, both in the form of a meeting

16 just like this one, and also in the form of written

17 comments, and I'll speak of what exactly I mean by that

18 towards of the end of this.

19 Tonight, I had a chance to meet some of you to

20 discuss some of the issues that you might want to focus

21 closer on in the fall. First, what I'm showing here

22 explains the DOT's role. I will also speak about NRC's

23 role.

24 The Department of Transportation is the primary

25 government agency for setting safety rules for

1 transportation of all hazardous materials. Radioactive
2 materials are transported as a subset of hazardous materials
3 by DOT.
4 Generally, for spent fuel, DOT sets the rules that
5 apply to normal transport, such as the radiation and
6 contamination limits that are acceptable for packages, or
7 around vehicles that contain spent fuel.
8 DOT also sets limits for communications, such as
9 how to placard vehicles and mark packages so emergency
10 responders know what the material is being shipped is, if
11 there is an accident.
12 DOT also sets the rules for how to select routes
13 for shipping spent fuel.
14 Regarding the last bullet, it's an important one,
15 the rules for shipping spent fuel that we have in the United
16 States are based on the rules internationally and they're
17 set by this group called the International Atomic Energy
18 Agency, who sets standards for shipments of all radioactive
19 materials. DOT and NRC both participate with the rest of
20 the countries in the world to make sure that all the
21 standards are consistent, and every ten years, we update
22 those standards.
23 NRC's role in transport of spent fuel is we
24 certify the casks that are used to ship the spent fuel is
25 accident-resistant and we go out and inspect the people that

1 actually make the casks and make sure that they're applying
2 the appropriate quality standards to the casks.
3 We also set the rules that apply to protect
4 against theft and sabotage of spent fuel and we inspect and
5 enforce both NRC's and DOT's regulations on the licensees
6 that will be doing the shipping.
7 I want to make it clear, though, that NRC and DOT,
8 neither one of us actually ship the spent fuel. That would
9 be the shipping is done by the DOE in this case, who would
10 be NRC's licensee, or it also might be done by the nuclear
11 utility.
12 There's three aspects of transportation that we
13 look at from a safety perspective. Routine transport of all
14 radioactive material presents a hazard because there is a
15 small amount of radiation that emanates through the walls of
16 the packages and can briefly expose people along the
17 transport route and it can also expose the driver of the
18 vehicle or state inspectors who may be performing an
19 inspection of the truck shipping through their state.
20 The rules that apply to routine transport were
21 looked at in the 1977 study that we did. That study is
22 called NUREG-0170. Now, it did look at all transportation
23 of all radioactive materials. It summed up estimates of the
24 exposures that could occur to the general population and set
25 safety levels that exist in the rule today to ensure that if

1 you -- that there is an adequate protection, level of
2 protection in the public domain from transportation of
3 radioactive material.
4 I want to skip accidents for a second and talk
5 about theft and sabotage. Another objective we have in
6 spent fuel transport is to minimize the probability of
7 sabotage or theft and to aid in the location and recovery of
8 spent fuel if it is stolen.
9 Now, how would we do that? Before each shipment,
10 we go out and we try to detect threats along the route. We
11 actually drive along the routes. We review each route that
12 will be used for spent fuel shipment and during shipments,
13 we focus on things such as communication, providing armed
14 escorts through urban areas, and providing disabling devices
15 in the vehicles.
16 And we do have a study that estimates the
17 consequences of attempted sabotage and that forms the basis
18 for the approach we have in our rule.
19 As far as accidents, I'm going to show a picture
20 while I talk about accidents. This is -- this shows what a
21 spent fuel cask looks like. This is a cask that weighs 70
22 tons, I think. It's being welded onto a rail car in this
23 picture.
24 How do we protect against accidents? We rely on
25 the ruggedness of these casks. Any large quantity of

1 radioactive material must be shipped in casks that are
2 approved by NRC. Now, to get approval by NRC to use a cask,
3 each cask design has to pass four tests.
4 There is a 30-foot drop, a puncturing drop,
5 immersion in fire and immersion in a pool of water.
6 Now, every cask that is used must not only survive
7 these tests, but contain the spent fuel afterwards. That's
8 not to say that we test each cask physically. We do use
9 computer analysis to show that they can comply with these
10 tests. These tests we call hypothetical tests that we set
11 up in the regulation.
12 Now, the natural question is, how do those
13 hypothetical tests that we have in the regulation relate to
14 the forces that you can see in real world accidents on the
15 highways and railways and we have a study that was done in
16 1987 and that's this blue book that we have in the back, a
17 summary of the results of that study.
18 Now, that study is called the Mobile study. It's
19 something I'm going to come back to a minute. But it
20 answered the question of how the hypothetical tests in our
21 rule compare to the severity of accidents that could be
22 exerted by a cask in the real world.
23 And we found that -- our conclusion was that about
24 99.4 percent of the accidents that could occur in
25 transporting spent fuel would be bounded by the tests in the

1 rule.

2 The next slide, I just wanted to quickly discuss
3 some of the favorable history we have and put the shipment
4 of radioactive materials in a little context.

5 Now, it's hard to get a good idea, an estimate of
6 the number of hazardous materials shipments that occur every
7 day. This one I have says that about 770,000 shipments
8 around the roads at any given time.

9 Now, everybody has seen the red diamond-shaped
10 placards that are placed all over gasoline trucks, tank
11 trucks full of gasoline, that's an example of a hazardous
12 material shipment. Radioactive materials are shipped the
13 same way, a placard for radioactive materials is half yellow
14 and half white.

15 Now, the transportation of hazardous materials has
16 a very good safety record and with this many shipments, they
17 have a lot of data to show that they have that very good
18 safety record.

19 The transportation of radioactive materials has an
20 even better safety record. Every day, as I show, about
21 10,000 radioactive shipments are made.

22 Now, it's my guess, but maybe about one in a
23 hundred of those shipments or about a hundred shipments a
24 day would be made in a large enough quantity to be in an
25 accident-resistant cask. That could say something about the

1 number of accident-resistant cask shipments that are made
2 everyday.
3 As far as spent fuel itself, there has been about
4 1,300 shipments of spent fuel in the last 20 years that have
5 been made in NRC-approved casks and as I note, there have
6 been some accidents that involved a vehicle carrying a spent
7 fuel cask, but no spent fuel cask has ever failed in an
8 accident. So that's a very good, perfect safety record with
9 respect to shipping spent fuel.
10 I should note, I don't say it here, but there is a
11 lot of shipments of spent fuel made outside of the United
12 States. Of course, there wouldn't be NRC casks,
13 NRC-certified casks, but they would be made with casks that
14 meet the same basic standards, because of what I spoke about
15 earlier, that we follow the international standards.
16 Now, earlier, I mentioned that there are some
17 upcoming chances to talk more about transportation. That's
18 because we're doing two things at NRC right now. We're
19 sponsoring reassessments of the two studies I mentioned, the
20 1977 study that forms the basis of our rules, and also the
21 1987 study that looked at the consequences of severe
22 accidents.
23 Now, for the 1987 study, the severe accident
24 study, we are going to -- we hope our approach for that is
25 going to be to come out, have some workshops similar to this

1 workshop, to identify the issues. We know that there has
2 been some challenges to these studies sponsored by the State
3 of Nevada, sponsored by other people, and we're going to
4 look at those, we're going to identify all the issues that
5 the stakeholders may have and the public may have. We're
6 going to come up with a plan to resolve those issues and if
7 we need to, we'll even eventually get involved in some
8 testing of some full-size or scale-size casks, actual
9 physical testing to confirm that the computer models we have
10 are doing what we believe that they're doing.
11 Why are opening, reopening these? Well, aside
12 from the fact that they're ten years old, it might be a good
13 enough reason in and of itself. We know that there's a lot
14 of changes happening in both directions.
15 Compared to the assumptions made in these studies,
16 the shipments that would be made would be probably of a
17 longer distance and they will probably use bigger casks.
18 On the other hand, it's a lot older than was
19 assumed for these studies. So there is less radioactivity
20 involved. Also, as Keith mentioned, we now have -- when we
21 did these studies, we had computers, but we had to use the
22 super computers at a national lab. Now we can do
23 calculations with an even more sophisticated model on our
24 desktop.
25 And we do recognize the criticisms that people

1 have made against these studies, but we do stand behind
2 these studies. We feel that the record demonstrates the
3 safety that we have in shipping radioactive materials. The
4 safety comes from these studies and is demonstrated for the
5 record.
6 I guess I'll wrap it up and I'd like to leave you
7 with a thought that we are looking at the concerns that you
8 may have in this area. We will be back to talk about these
9 issues. It's not something that we have closed the book on.
10 We are continuing looking at our regulations to
11 look for ways to improve them and we're looking forward to
12 seeing you again in the fall.
13 MR. CAMERON: Thanks, Rob. Before we go out for
14 questions for Rob, Bill Reamer is going to give us a little
15 bit of explanation about a recent rule that may have
16 implications for the transportation of high level waste in
17 Nevada, and this was a proposed rule associated with the
18 license renewal process. Bill?
19 MR. REAMER: Yes, Chip. The meeting tonight is on
20 our proposed regulations for the repository. It's not on
21 the license renewal rule, proposed rule, and the
22 transportation impacts.
23 However, if we receive comments tonight in this
24 meeting related to that license renewal rule, comments that
25 contain new information, we will give those comments

1 consideration and we have a transcript of tonight, so I can
2 tell you that we will make that transcript available and we
3 will look and consider those comments.
4 The second point I want to make is that we are
5 interested in your comments on transportation. We're
6 interested tonight in whatever you have to say. We expect
7 that the Department of Energy's draft environmental impact
8 statement will also consider transportation impacts and,
9 therefore, that in our comments, the NRC comments on that
10 draft statement will be addressing the transportation
11 impacts.
12 And that meeting that I talked about earlier that
13 we'd like to have in September before we prepare our
14 comments, we would be interested in hearing from you, as
15 well, on the transportation impacts at that time.
16 And, of course, as Rob mentioned, we have
17 workshops that we'd like to hold that would also address
18 transportation impacts.
19 MR. CAMERON: Thanks, Bill. Do we have some
20 questions or comments on transportation? Let's go back here
21 to Michael. Michael, if you could just stage your name and
22 affiliation for everybody.
23 MR. CARROLL: I'm Mike Carroll, from the Nuclear
24 Waste Technical Review Board. Just one question. What were
25 you saying about the full-scale testing versus

1 scale-testing? Are you going to actually do some full-scale
2 testing or look at it?
3 MR. LEWIS: Of course, we're in the preliminary
4 stages of defining this task that we have to do.
5 Is that better now?
6 I was saying we're in the preliminary stages of
7 defining what we need to do with respect to looking at the
8 -- relooking at the response to casks in an accident.
9 We're going to sit down in the fall here, a
10 one-week workshop in Las Vegas and two other workshops, we
11 haven't decided where yet, we're going to identify the
12 issues. We're going to have the contractor, who is
13 experienced with testing of packages, of spent fuel
14 packages, and we're going to come up with a plan to resolve
15 the issues.
16 That plan may involve scale testing, testing of
17 components. It may involve full-scale testing. Of course,
18 full-scale testing is very expensive to do.
19 MR. CARROLL: Is this contractor Sandia?
20 MR. LEWIS: We have not issued a contract yet, but
21 it will a - probably will be a national lab like Sandia or
22 like the Lawrence Livermore lab, who has such great
23 experience in testing packages, spent fuel packages.
24 MR. CAMERON: All right. I think we have a couple
25 of questions up here. Dr. Chase, did you have a question?

1 DR. CHASE: Have you looked at the safety
2 conditions or safety issues that you might see in the
3 transportation of the waste in any kind of container?
4 Derailings, for example, are pretty common in this country.
5 Perhaps a package could get lost. It might be a -- I'm not
6 trying to be funny, but there are -- this country is envied
7 by almost every other country in the world. They might slip
8 a terrorist over here and all they need is one uranium
9 bazooka shell fired from half-a-mile off the railroad to
10 knock a nice big hole through that package. They do destroy
11 tanks, you know, with those thinks.
12 All I'm trying to say is if you're going to
13 consider testing, are you going to consider testing as a --
14 are you going to consider function, the function of
15 transportation as an element in the testing of the package?
16 MR. CAMERON: Rob?
17 MR. LEWIS: I think there's two questions there.
18 One is do we look at the consequences of accidents that
19 packages may be involved in. The answer to that is yes.
20 That's what these studies do. This one is specific to spent
21 fuel. The NUREG-0170 that I mentioned and that we are also
22 going to be looking at looks not only at spent fuel, but all
23 other radioactive materials and it very explicitly looks at
24 accidents.
25 And the second part of your question involved

1 threats such as sabotage. Now, we have looked at Sabotage,
2 as I mentioned, and you are correct that the casks obviously
3 will not withstand the most sophisticated of missiles that
4 somebody might shoot at it.
5 What we have done in the past, in the '80s, we
6 sponsored a study that was done to look at what could happen
7 in a sabotage, and it looked at shooting a projectile at a
8 cask and the cask was penetrated, resulted in a small
9 release.
10 The bigger threat we thought would be in a
11 situation where -- because there was a small release, the
12 bigger threat we thought would be in a situation where the
13 cask was actually stolen and taken into an urban area and
14 then tried to -- attempts were made to damage the cask and
15 release the material.
16 So what our rules do is we focus on stopping theft
17 of the material. We also have rules, such as requiring
18 armed escorts in urban areas, to try to minimize the threats
19 associated with theft and sabotage.
20 Now, the State of Nevada has performed a study
21 since that study that suggests that we have under-estimated
22 the consequences of a sabotage attack; that there would
23 actually be a larger release from the cask. And I'm not
24 involved with that, but I know the NRC is looking at that
25 issue, some of my colleagues back in Washington, and trying

1 to figure out what can be done to assess the logic in
2 Nevada's report and maybe update our reports to reflect the
3 newer information.
4 MR. CAMERON: Thanks, Rob. Thank you. We'll go
5 to this gentleman here.
6 MR. CLOQUET: Rob, just for a point of
7 information, there was already one nuclear incident that
8 occurred in Kingman, Arizona, last year, are you aware of
9 that?
10 MR. LEWIS: No. I'm not familiar with an incident
11 in Kingman, Arizona. Did it involve spent fuel?
12 MR. CLOQUET: It was low level nuclear waste
13 leaked from the truck onto the ground.
14 MR. LEWIS: Yes, I am familiar with that.
15 MR. CLOQUET: Is NRC aware of this?
16 MR. LEWIS: Yes, absolutely. We were involved
17 with investigating that incident. I wasn't aware that it
18 was in Kingman, Arizona, but I do remember it was a low
19 level waste shipment. What I was speaking about here --
20 there had been incidents involving low level waste
21 shipments.
22 Spent fuel shipments have much higher levels of
23 radiation. Of course, that's why we require much more
24 rigorous casks for spent fuel or for high level nuclear
25 waste.

1 MR. CLOQUET: Can I ask one more question?
2 MR. LEWIS: Sure.
3 MR. CAMERON: Why don't you --
4 MR. CLOQUET: One more question I was wondering
5 about. Does the NRC regulate the transfer or transportation
6 of nuclear weapons in the United States?
7 MR. CAMERON: No.
8 MR. LEWIS: No. We do not regulate the transport
9 of nuclear weapons.
10 MR. CAMERON: All right. Do we need to add any
11 more clarification on that? All right.
12 MS. JOHNSON: Abbie Johnson, Eureka County. Rob,
13 you said that you wanted to reopen these studies, which I
14 think that's a really good idea because I think they're a
15 little old, and develop a plan.
16 Is that plan then going to result in regulatory
17 changes? We're going to do this back and forth, maybe.
18 MR. LEWIS: We believe that the regulations we
19 have are safe and we believe the record demonstrates that
20 safety. However, if we reopen NUREG-0710, we believe that
21 with the newer models we have, if we -- we're going to take
22 a good hard look at the issues and the risks that we
23 estimate will actually be lower than the risks that were
24 estimated in the past. But that's kind of pre-judging, but
25 that's just a general feeling.

1 We're going into it with an open mind. If we can
2 find deficiencies, it will be our responsibility to act to
3 correct those deficiencies. That may involve changing our
4 rules. It may involve other things besides changing the
5 rules, but that's one eventuality that could occur.
6 MS. JOHNSON: So if, in that eventuality, the rule
7 is changed, my question is, how does that relate to what DOE
8 has to do to fabricate casks and the whole DOE Yucca
9 Mountain schedule?
10 It seems like there is a possibility that these
11 two activities could be going along in parallel universes
12 and never connecting. So the DOE says, well, they didn't
13 change the rule at that time, and so it actually wouldn't
14 make any difference because it wouldn't affect DOE, because
15 they would have started here and didn't get it done until
16 here.
17 Is that a possibility?
18 MR. LEWIS: Well, I would respond by saying --
19 noting that spent fuel shipments are occurring now and they
20 have been safe to date. They can continue to occur if we
21 were to change our regulations. Of course, new cask designs
22 would be required, but that's not to say that the current
23 regulations -- I don't think we're going to find -- what I'm
24 trying to say is I don't think we're going to find a fatal
25 flaw in the current regulations that we're going to say all

1 transportation in the United States needs to stop
2 immediately.
3 That's just -- based on the safety that we have, I
4 don't see that happening. There might be fine-tuning, but
5 it's not going to be a major difference.
6 MS. JOHNSON: I just have two more things. One
7 is, I think that -- this is a comment -- that the shipping
8 -- using the shipping history of 1,300 shipments over 20
9 years is not a lot of experience and I don't think that's
10 really a strong point of the safety record. That's just a
11 comment.
12 MR. LEWIS: I agree with your comment. That's why
13 we're reopening these issues.
14 MS. JOHNSON: Now, I've heard about a lot of
15 workshops tonight, new workshops, and I heard the words the
16 fall. And given the 90-day comment period on the DOE EIS, I
17 made this same sort of comment today, too, those of us that
18 want to fully participate in the process need a little
19 leverage here or cut us a break.
20 It's great to have these workshops. We really
21 want to participate, but it may overwhelm us if you have
22 these workshops at the same time that we're trying to cover
23 EIS hearings, read the document, and write our comments.
24 MR. LEWIS: What I could commit to you to do is
25 coordinate with Bill, who is charge of reviewing the EIS, to

1 make sure that that type of consideration gets made.

2 MR. CAMERON: It sounds like another action item

3 to consider, for the NRC to consider, is the coordination of

4 all of the different events that are going on.

5 Bill?

6 MR. VASCONY: Bill Vascony, Las Vegas, Nevada.

7 I've been a resident here for 36 years. First of all, I'd

8 like to thank those representatives of the NRC that have

9 been here repeatedly in the past and are here again and have

10 made promises of future meetings.

11 I personally think you were well prepared tonight.

12 I've enjoyed your responses and I'd like to thank you for

13 the table information that was available out front.

14 NRC, in my point of view, has come a long way in

15 the last three or four years as far as public participation

16 and hearing our questions and comments.

17 Now, just a comment, and we'll almost have this

18 wrapped up, I guess. We're talking about transportation of

19 nuclear waste.

20 Well, information shows us that we're in our

21 second year of a ten-year span with the Nevada test site

22 where we see 55,000 shipments of waste, low level waste

23 that's going on right now.

24 Another example I would give you is environmentalists, et

25 cetera, have plotted the last Minuteman missile that left

1 Dakota. They weren't disassembled at the silos. They were
2 shipped across our country on trucks, railroads. And Texas
3 holds some 18,000 plutonium pits from our nuclear arsenal.
4 As we sit here in Las Vegas, right now, and this
5 was written by our Sun reporter, there's 1,450 nuclear
6 devices at Ellis Air Force Base.
7 Why would a saboteur take a missile shot at a
8 truckload of waste when all he's got to do is aim it at
9 north Las Vegas and hit one of 1,450 nuclear weapons that
10 are prepared? By the way, they were shipped here, too, by
11 truck, by airplane, from antiquated B-52 bombers and
12 fighters.
13 Thank you very much.
14 MR. CAMERON: Thank you, Bill, for putting that
15 into perspective and also for the nice words that you said
16 about the NRC.
17 Do we have some other questions on transportation?
18 Ian, I don't know if you want to address transportation or
19 something else, but go ahead.
20 MR. ZABARTE: My name is Ian Zabarte. I just have
21 a couple points on transportation. You're not concerned
22 with the initial points or the terminal points of
23 transportation, just the methods and the casks that will be
24 used and how this is accomplished. Is that accurate?
25 MR. LEWIS: I'm not sure what you mean by not

1 concerned, but --

2 MR. ZABARTE: Everything in between is what you're

3 concerned with, how it gets from one place to another.

4 MR. LEWIS: Right. In this case, there would be a

5 licensee shipping at the beginning, which a different part

6 of NRC would be regulating. There would be a repository at

7 the end, where the Division of Waste Management people would

8 be regulating. And in between, it would be the Spent Fuel

9 Project Office that would look at the transportation part.

10 Yes.

11 MR. ZABARTE: I'm really just trying to look at

12 the responsible parties.

13 Your presentation gave me the impression or I was

14 persuaded to believe that there are many shipments that are

15 taking place that you're involved in regulating and that

16 it's business as usual with high level waste, but I didn't

17 get the feeling that there was a difference in the shipping

18 containers.

19 You showed a container in your slide. Is that the

20 container -- is that an actual container which will be used?

21 Who manufactures that? Where is the container? You alluded

22 to opening up tests and you also mentioned that modeling --

23 that with modeling tools you now have, you can do different

24 assessments of the cask viability.

25 I was just still wondering -- there was one other

1 thing you said about the waste being not as radioactive now.
2 Is that in the past ten years, past 20 years? If so, it
3 sounds to me like in another ten or 20 years, we're not
4 going to have to worry about the radioactivity.
5 And I just -- what I'm getting to is that I just
6 don't get the impression that we're dealing with something
7 that's radioactive for 10,000 years or 250,000 years,
8 whatever the case may be, and I just wanted to point to the
9 language that we're -- or the language that we're using and
10 how we communicate to each other, that I'm not getting an
11 accurate understanding of what we're dealing with here.
12 So I just wanted to make that point.
13 MR. LEWIS: I understand. I understand what
14 you're telling us and I don't want to leave you the
15 impression that shipment of spent fuel is business as usual
16 today.
17 This spent fuel does have a higher hazard than
18 most, if not all other radioactive material that's shipped,
19 and because of that higher hazard, you have to do special
20 things when you ship spent fuel.
21 This picture is of a cask that is used and has
22 been used in those 1,300 shipments in the past 20 years,
23 it's not one cask that's been used, but this is a picture of
24 the design.
25 And it is, like I said, it's a 70-ton cask, it's

1 five feet across. This one is used for rail shipments.
2 It's called the IF-300. I believe it only contains either
3 one or four assemblies, I'm not sure, I think it might be
4 four, but in any event, this cask would be smaller than the
5 casks that are envisioned, the larger dual purpose, where
6 you store it in the cask and then ship it in the cask at
7 some point.
8 Those are bigger than these and we are in the process of
9 reviewing and approving several designs for those bigger
10 casks. Because of those bigger casks is one of the reasons
11 we felt we needed to reopen these studies we did in the
12 past.
13 Now, the spent fuel is hazardous. I did say the
14 radioactive -- excuse me -- the radioactivity declines and
15 it has declined since the assumptions we had in these
16 original studies.
17 The reason is in the original studies, we were
18 assuming an economy where we recycle the material instead of
19 an economy where we sent the material off for disposal.
20 So they were shipping newer fuel that was freshly
21 out of a reactor and it had higher radioactivity. The
22 radioactivity -- the activity, radioactivity of spent
23 nuclear fuel decreases rapidly for about the first ten
24 years. Then it starts to level off and it levels off and
25 remains hazardous for a very long time.

1 So there's a certain point where it is decreasing,
2 the radiation emitted is decreasing rapidly, but after a
3 certain point of waiting, it starts to decrease less and
4 less rapidly and waiting additional time doesn't gain you as
5 much as it would have if you -- as opposed to waiting
6 additional time from the time it is initially out of the
7 reactor, but it is a very long -- I can talk to you more
8 about it. Sorry.
9 MR. CAMERON: Okay. Thanks, Rob. I want to make
10 sure that some people that wanted to speak get the
11 opportunity who haven't talked yet tonight. Dr. Kaz, David
12 Kaz?
13 [No response.]
14 MR. CAMERON: Andrew Gillespie?
15 [No response.]
16 MR. CAMERON: Earl Ditson?
17 [No response.]
18 MR. CAMERON: All right. Okay. I think we're
19 getting ready to wrap up, but let me see if there are some
20 final questions here. Pardon me, sir? Okay. And Adrian
21 has something to say. Adrian, can you just -- I'm sorry.
22 I'm taking a survey sort of. Susan, did you have something
23 else? Okay. Adrian, you have a quick question? Or a
24 question, anyway.
25 MS. ZOLKOVER: I get the impression that those

1 casks could be in the Grand Canyon on a train and somebody
2 could sabotage the rail so that the train would fall down
3 the Grand Canyon, and that thing still would really probably
4 get hurt or what's in it, it wouldn't do very much damage.
5 In other words, there wouldn't be that much point
6 to do much about that, right? Am I right?
7 MR. CAMERON: Looking for some reassurance. Rob?
8 MR. LEWIS: I wouldn't make the claim that it
9 couldn't roll down the Grand Canyon, but I think the casks
10 are rigorous and like I said, this report estimates that
11 they will withstand about 99.4 percent of all the accidents
12 that could ever occur. That's if an accident occurs.
13 And the routes that are picked would avoid danger,
14 such as a canyon so large that it would put the cask in a
15 possible condition in which it could experience much greater
16 forces as it would if it fell all the way down the canyon.
17 MS. ZOLKOVER: Well, could you just run a test
18 car, say, a block in front of it and not let anything else
19 in between, so if something happened to the track, it would
20 stop in advance? They have like a rolling target or
21 something.
22 MR. CAMERON: Rob, maybe you could talk to Adrian
23 about that after we break up tonight.
24 Why don't you give us your comment, sir?
25 MR. CLOQUET: Good evening, ladies and gentlemen.

1 I'm Don Cloquet. I'm a friendly Indian visitor from a
2 neighboring tribe, I'm from the Pacific Northwest, and I'm
3 very familiar with the Hanford Reservation.
4 First, I want to thank the NRC for being here
5 tonight and allowing me the pleasure of stating what I have
6 to say. Las Vegas is now 1.5 million people, the County of
7 Las Vegas. We have over 15,000 Native American Indians
8 living in this region.
9 MR. CAMERON: Let's bring you over to this
10 microphone here.
11 MR. CLOQUET: Can everybody hear me now? As I
12 said, the Las Vegas region contains 1,500,000 individuals.
13 We are the fastest-growing city in the United States. We
14 have over 15,000 Native Americans residing in this region.
15 We have many traditional cultures and religious
16 beliefs. The tribes have signed over 250 treaties with the
17 United States Federal Government and they all have been
18 broken in one way or another.
19 As a Native American, I would respectfully request
20 a copy of your Native American Policy as mandated by
21 President Bill Clinton. All the public agencies must have
22 this policy.
23 Native American believe that human remains -- in
24 25 USC .3001, that would be affected by the effects of
25 radioactive nuclear waste due to the packages.

1 Native American tribes are a sovereign nation. We
2 are not public people. We are a sovereign nation. Many
3 treaties have been signed with the United States Federal
4 Government. Native American tribes believe that there has
5 been total disregard by the Nuclear Regulatory Commission on
6 having a mandated dialogue with them as mandated by
7 President Bill Clinton as part of the government
8 relationship with them.
9 Native Americans have documented that radiation is
10 perceived as -- if anyone would like to hear more about
11 this.
12 Las Vegas County is 1.5 million people. On
13 December 24, 1998, there was a train wreck. High level
14 nuclear waste, as well, and the rail cars tipped over and
15 spilled the material in the creek four miles east.
16 Twelve Native American tribes would suggest that,
17 as soon as possible, that -- the Tribal Council is one of
18 the most important tribal ordinances. The failure to obey
19 the tribal ordinances would be a violation of Federal and
20 Tribal law.
21 This would affect the safety and cultural
22 concerns, the environmental justice, cultural survival and
23 access to the holy lands. I can assure you that there would
24 be a large-scale class action suit.
25 I'd like to speak for the National Congress of

1 American Indians, our meeting in San Diego, where we are
2 meeting today, tomorrow and on Friday. The purpose of the
3 meeting is to discuss the impact by Tribal representatives
4 and Department of Transportation on high level --
5 Thank you.
6 MR. CAMERON: Thank you. Thank you, Don.
7 We're going to close off with -- we have a couple
8 of administrative announcements, but we're going to close
9 out with Susan Zimmerman from the State of Nevada.
10 MS. ZIMMERMAN: One question I have is where did
11 Janet go? Is she no longer available?
12 MS. CAMERON: I think she'll be back. We're going
13 to get her.
14 MS. ZIMMERMAN: Then I'll start with Rob. You had
15 the viewgraph of the favorable history and I know many times
16 in the past, the NRC has been dinged about using all these
17 analogies as this means that transporting spent nuclear fuel
18 for the repository program is, therefore, going to be safe.
19 And in the state's perspective, you're trying to
20 compare apples and oranges, because never before has a
21 shipping campaign of this magnitude been undertaken with
22 spent nuclear fuel.
23 As Abbie Johnson said, 1,300 spent fuel shipments
24 in 20 years is miniscule compared to what is going to be
25 transported. You have 10,000 radioactive shipments daily.

1 You don't specify the size of those shipments, what they
2 actually are, how far they're transported or anything.
3 So it's -- a data point like that is basically
4 meaningless. If you're going to use this type of
5 information and present it to the public, then you need to
6 be more specific of exactly what you're talking about,
7 instead of just trying to, in our opinion, obscure or
8 obfuscate the facts that these may not necessarily correlate
9 directly with spent nuclear fuel shipments.
10 My question to Janet is, I originally asked you
11 earlier about if there was any Congressional action,
12 Congressional law that gave you impetus to issue 10 CFR 63
13 at this time, and you said no, there wasn't. Although in
14 your viewgraphs, you said that you were complying with
15 Congressional direction.
16 So I'm a little at a loss on which way it is.
17 DR. KOTRA: We have Congressional direction that
18 we have to comply with. We believe in order to best comply
19 with that direction, it is prudent to move forward with a
20 proposal at this time. The proposal is to be able to
21 conform to new health-based environment and public
22 protection standards.
23 Because of the complexity of the implementation of
24 regulations for a first-of-a-kind facility, even our simpler
25 rules, the process we go through usually consumes more than

1 a single year.

2 In addition to the fact that this is a more

3 complex set of regulations, we also are committed to a broad

4 public participation process.

5 For all of those reasons, to comply with the

6 Congressional direction, we felt the best way to do that --

7 I realize because of the shorthand of the slides, that you

8 -- I understand that you could get that misimpression.

9 We're not saying that the law said thou shalt issue a

10 regulation called Part 63. All the law said was thou shalt

11 comply and be consistent with these newly created standards

12 within one calendar year.

13 We can't do that starting from ground zero and 12

14 months later produce a final rule that reflects the

15 necessary technical input and public comment that we believe

16 is necessary.

17 Does that answer your question?

18 MS. ZIMMERMAN: Yes, it does. But you might want

19 to clarify that on the viewgraph if you intend to use it

20 again.

21 DR. KOTRA: Thank you. I'll find a better way to

22 say this. Thanks.

23 MR. CAMERON: Okay. Great. Well, I'd like to

24 thank all of you for attending tonight and for your patience

25 with a not really well functioning audio system here

1 tonight.

2 I wanted to thank Judy Goodwin of the NRC staff

3 and also Vivian Veerhoff, who is in the back. Vivian works

4 with the -- she's one of the staff of the NRC on-site

5 representatives office. She's back there. And we do have

6 the number, telephone number and fax number for you.

7 Judy Goodwin said that she needs more address

8 information from two people who wanted to be mailed a

9 meeting transcript. One was John Fisher and another was

10 John McGee. If they're still here, give her the

11 information.

12 And the comment sheets that you got when you came

13 in, you can either give the to Judy or Vivian or drop them

14 in the box out there or mail them back.

15 I guess I would just thank all of you. So we're

16 adjourned.

17 [Applause.]

18 [Whereupon, at 10:30 a.m., the meeting was

19 concluded.]

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REPORTER'S CERTIFICATE

This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission in the matter of:

NAME OF PROCEEDING: PUBLIC MEETING ON PROPOSED REGULATIONS (10 PART 63) FOR A HIGH-LEVEL WASTE REPOSITORY AT YUCCA MOUNTAIN, NEVADA

DOCKET NUMBER:

ASLBP No.

PLACE OF PROCEEDING: Las Vegas, Nevada

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission taken by me and thereafter reduced to typewriting by me or under the direction of the court reporting company, and that the transcript is a true and accurate record of the foregoing proceedings.

Carey Leffler
Official Reporter
Ann Riley & Associates, Ltd.