OFFICIAL TRANSCRIPT OF PROCEEDINGS

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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

Case No.:

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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 Amargosa Valley Community Center

10 821 East Farm Road

11 Amargosa Valley, Nevada

12

13 Tuesday, June 15, 1999

14

15 The above-entitled meeting commenced, pursuant to

16 notice, at 7:15 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

[7:15 p.m.]

3 CHIP CAMERON: Good evening, everybody. I'd like
4 to welcome you to the Nuclear Regulatory Commission's public
5 meeting on the NRC's regulatory responsibilities for a
6 high-level waste repository, and we're going to try to keep
7 the three-letter words to a minimum tonight, but I think
8 that one acronym that people will be using is NRC, and
9 that's Nuclear Regulatory Commission.
10 I'd like to thank the community here in Amargosa
11 Valley for the hospitality in letting us use this nice
12 meeting facility tonight.
13 My name is Chip Cameron. I'm going to serve as
14 the facilitator for tonight's meeting, and my job is to try
15 to assist all of you in having a good meeting tonight, and
16 my goals for a good meeting are that the NRC staff provides
17 you with clear information, understandable information on
18 the NRC's responsibilities and that they understand your
19 questions and comments.
20 Another goal is that all of you who wish to speak
21 tonight get that opportunity to talk, to question, to
22 comment.
23 I'd like to keep the discussion focused and
24 relevant tonight. The main topic is NRC's responsibilities
25 with regard to the high-level waste repository. However, we

1 know there are broader concerns than that, and we may be
2 able to assist you with information on those concerns. But
3 primarily, I'd like to keep the focus on NRC
4 responsibilities.
5 And finally, another goal is to just be courteous
6 to one another in terms of only one person talking at a
7 time, so that we will listen to what that person has to say
8 and not interrupting.
9 The ground rules are simple. We're going to go
10 through our agenda, and I apologize, we brought everything,
11 as you can see, back on that table, but we didn't bring the
12 agenda. So, I'm going to go through that for you, so you
13 know what that is.
14 But when we get to the audience discussion -- and
15 we're going to have brief presentations from the NRC staff
16 so that you have something to focus your discussion, but
17 basically, we want to hear from you.
18 But if you do have a comment or a question, I'll
19 call on you, and I'll either give you this talking stick or
20 some up to the microphone here. Please state your name and
21 your affiliation, as appropriate.
22 We are keeping a transcript of tonight's meeting,
23 and that's to help us to make sure that we do capture -- we
24 do want to make sure we hear what you have to say. So, we
25 are taking names and a transcript.

1 I would just ask everybody, including the NRC
2 staff and including myself, to try to be concise so that we
3 can get everybody tonight.
4 Now, the agenda -- I'm just going to quickly run
5 through this, so you know what to expect.
6 We're going to start with Bill Reamer, who is over
7 here at the main table.
8 Bill is the person who has the lead management
9 responsibility for NRC's efforts in regard to the
10 repository, and he's going to open up tonight talking about
11 NRC's roles and responsibilities but also what opportunities
12 are there for the public to influence how NRC does its work
13 through this whole process.
14 After Bill is done, we're going to go to all of
15 you for comment.
16 The next segment is going to be a panel of sorts.
17 Dr. Janet Kotra and Tim McCartin from the NRC staff -- and
18 I'll introduce you to them when they come -- are going to
19 talk about the NRC's proposed rules that the Department of
20 Energy has to meet if the Department wants to get a license
21 for a repository, if, indeed, they do come forward with a
22 license application.
23 Janet and Tim are going to go through that
24 proposed rule, and then we'll go to you for questions.
25 If you remember from the last time we were out,

1 which was in March, one of the comments we heard from people
2 was give us some more time to evaluate and comment on the
3 proposed rule.
4 The NRC did listen. They extended the comment
5 period. That comment period closes at the end of the month
6 of June, and we're here to hear more comments from you, and
7 these comments will be treated the same way we treat written
8 comments.
9 We will evaluate them and revise the rule
10 accordingly, and Janet will talk a little bit more about
11 that process.
12 After we discuss the proposed rule with you, we're
13 going to go to two special issues of concern that we heard
14 last time, and Aby Mohseni from the NRC staff is going to
15 discuss how the rules -- NRC rules protect infants and
16 children, and Keith McConnell, who is over here, is going to
17 talk about how the rule establishes a system of multiple
18 barriers to provide protection to the public. Those two
19 presentations will be made, and then we'll go for question
20 and comment.
21 Our last segment tonight is going to be on
22 transportation. We also heard a lot of questions and
23 comments last time on transportation.
24 So, we're going to have Rob Lewis, who's right
25 over here, from the NRC staff that's going to talk about

1 high-level waste and spent fuel packaging and
2 transportation, and Bill Reamer is also going to say a few
3 words about another rule that the NRC did on something
4 called license renewal. This is license renewal for nuclear
5 power plants.
6 We had some material in it on -- that was
7 developed relevant to transportation to Yucca Mountain.
8 Bill's going to say a few words on what the implications of
9 that rule are for the repository, and then we'll wrap up
10 with anything that we didn't have time to cover from the
11 previous session.
12 So, let's get started with Bill Reamer's
13 presentation.
14 As I mentioned, Bill has the lead management
15 responsibility for carrying out NRC's responsibilities in
16 the high-level waste area. He's chief of the high-level
17 waste branch in the Office of Nuclear Materials Safety and
18 Safeguards at the NRC.
19 He's a lawyer by training and has substantial
20 experience with the high-level waste process.
21 Bill, I'm going to turn it over to you for our
22 presentation, and then we'll have audience discussion after
23 that, okay?
24 BILL REAMER: Thank you, Chip.
25 Welcome. Thank you for coming. I know that there

1 are a lot of things going on and other ways you could spend
2 your time, but we think it's an important topic to talk
3 about tonight, and we're glad that you're here and that you
4 agree.
5 I think, as Chip mentioned, when we were here in
6 March, actually in Beatty, we heard a number of concerns,
7 and we're back to tell you what our thinking is on that, to
8 continue the dialogue and hopefully to hear more from you.
9 One of the items that we realize we hadn't covered
10 in March the way we should have is who are we? Who is the
11 NRC?
12 We're not part of the Department of Energy. We're
13 an independent regulatory agency.
14 Our job is, first and foremost, to protect the
15 public health and safety. It's not to support the project
16 at Yucca Mountain; it's not to oppose the project at Yucca
17 Mountain. It is to bring a thorough and objective
18 evaluation to the facts as they are brought forward.
19 We regulate a number of various lines of atomic
20 energy activities. We have a lot of experience in
21 regulating nuclear activities. It ranges from nuclear power
22 plants to facilities that make fuel for nuclear power plants
23 to the medical uses of radioactive material.
24 We have experience in licensing and regulation and
25 in people being required to comply with our rules, and

1 that's what we bring to this project, and by law, we are the
2 regulator of the Department of Energy, if there is a Yucca
3 Mountain project, and our job is to assure public health and
4 safety, and that's our sole job.
5 Now, we -- just to set a context, before we say
6 more about how we're going to do that, what we expect the
7 DOE will do is that they will first, as they are doing now,
8 evaluate the Yucca Mountain site, that they will prepare an
9 environmental impact statement, and that they'll then make a
10 decision whether or not to recommend the site for a
11 repository, and if and only if that recommendation is
12 approved by the President and the Congress will they come to
13 us and apply for a license, and only if we, after reviewing
14 that, decide that a license should be issued will we
15 authorize and will DOE begin to build and operate a
16 repository, and DOE and we, too, will be there in our
17 regulatory role for the long term.
18 Now let's talk about our role. As I said, it's to
19 assure, in this case, safe waste disposal. How are we going
20 to do that?
21 First by setting the rules that DOE must meet, and
22 that's what we're going to talk about tonight, our proposed
23 rules. We'll be also providing comments on the Department
24 of Energy's draft environmental impact statement, which we
25 understand will be published the end of July.

1 Our hope, our thinking now is that, as part of our
2 providing comments, we will hold a public meeting in the
3 local area.
4 We'll be interested in what your reaction is to
5 the Department of Energy's draft environmental impact
6 statement, and we'll want to think about those comments that
7 you think are important.
8 In addition, if the site is approved by the
9 President and the Congress, it will be up to us to decide
10 whether, first, to permit construction of the repository and
11 then only later whether to license the possession of waste
12 at the repository, and of course, we will perform our role,
13 if there is a license and if there is a repository, by
14 ensuring that our rules that we're talking about tonight are
15 complied with by the Department of Energy throughout.
16 Now, how we intend to carry out our role, as I
17 mentioned earlier, is to fairly and objectively review all
18 of the information and to make decisions that are open
19 decisions. There are no deals. There are no political
20 deals here.
21 We will evaluate all of the information. If that
22 justifies the issuance of a license, we will take that step.
23 If the information does not justify the issuance of a
24 license, we won't issue a license, and we will not be
25 disappointed by the fact that we cannot issue a license,

1 because the facts won't be there to justify it. The facts
2 won't permit us to conclude that the public is protected.
3 Now, we have a step-wise process that I want to
4 mention, as well, that will allow new information to be
5 considered and accommodated along the way.
6 The first step will only be to consider whether to
7 authorize construction, and only after that construction
8 goes forward will we then, some years later, consider
9 whether to permit waste to be possessed at the site, and
10 then there are additional steps that we will require DOE to
11 go through and provide additional information.
12 For example, before the repository can be closed
13 to any waste, to any additional waste, we will again
14 evaluate DOE's showing to consider whether the facts justify
15 closure, and yet even a fourth occasion, when DOE applies to
16 terminate our license, we will again look at the
17 information.
18 Each step is an incremental step. Each step
19 depends upon the Department of Energy to prove that the
20 action it wants is justified, and each step is going to
21 involve new information for us to consider, and throughout
22 our process, the public's going to be involved.
23 It's going to be involved right now, through our
24 informal dialogue with you, and we have a commitment to you
25 not to appear here just tonight but to appear here

1 throughout the process.

2 As I said, we're here for the long term. You're

3 here for the long term. We are, too. Our role is to

4 protect you.

5 We can only do that by coming out, not just once,

6 not just twice, but regularly, holding meetings, telling you

7 what we're doing, letting you comment on what our proposed

8 actions are, hearing your comments, taking them into

9 account, and doing something about it, something that you

10 can see.

11 I mean we want to be accountable, and we will show

12 that your comments mean something to us by acting on them.

13 Later, if there is a license application, the

14 process will become more formal, there will be lawyer-type

15 litigation, but that's down the road. What we're talking

16 about tonight is this dialogue that we're committed to

17 holding with you.

18 Tonight, our goals in this meeting are to explain

19 to, again, why we think that new issues -- new rules -- that

20 the issuance of the rules are justified now; secondly, how

21 we believe our rules will be protective of the public; and

22 third, is our proposal protective enough? We want to

23 continue discussion on that issue with you. Fourth, how

24 does our proposal ensure multiple barriers that protect you

25 against the release of radioactive materials from a

1 repository, and last, how will people be protected from the
2 risks of transportation?
3 So, in any event, I'm happy to be here tonight.
4 I'm happy we can continue the dialogue. I'm going to stop
5 talking now and let things go forward.
6 CHIP CAMERON: Okay. Thank you very much, Bill.
7 What we'd like to do is turn to those of you in
8 the audience now to see if you have any questions or
9 comments about Bill's presentation. In other words, what is
10 the NRC role?
11 Sally?
12 SALLY DEDLIN: Sally Dedlin. Thank you so much,
13 Bill and everybody, for coming to Amargosa.
14 I am here basically because we were told this was
15 going to be the explanation on the biosphere, and I brought
16 you three pages from book three on the biosphere which is
17 totally incomprehensible. I think this biosphere is the
18 main thing.
19 Transportation is not even thought of, and there
20 are other things that don't seem to be addressed, and one of
21 them is we certainly don't understand the biosphere, and one
22 of the things I got out after reading the five books is that
23 Mr. Barrett uses the term which I called Washington on, and
24 I said what in the world does this mean, assigned
25 uncertainty, and that is questions that have to be answered

1 given the context of the moment.

2 Do you want me to say that again? Assigned

3 uncertainty. That's Mr. Barrett, the head of this, that

4 wrote the five books.

5 Questions that have be answered in the context of

6 the moment, and this is what terrifies me, is that phrase,

7 not only assigned uncertainty but context of the moment,

8 because I know the dates that you have for finishing this,

9 and they are awfully fast, and it's not enough time for

10 anybody to digest the multitude of information and

11 especially -- and I'm going to bring this up later --

12 information that is wrong.

13 CHIP CAMERON: Okay. Thank you.

14 SALLY DEDLIN: So, we're here about the biosphere.

15 That's why we're here.

16 CHIP CAMERON: Thank you, Sally.

17 Bill, do you have an idea of what Sally is talking

18 about when she mentions the biosphere and the five books?

19 BILL REAMER: Well, I know what she's talking

20 about when she talks about the context of the issue of the

21 moment, and we are here for the long term. We're not here

22 just for the moment. We're here for the duration of this

23 proposal, through all the steps of it.

24 Tonight, we've tried to arrange our program to

25 respond in more detail to what we heard in March. If we are

1 unsuccessful in answering the questions that you have, I'm
2 sure that you will make that apparent as we go along, and
3 we'll come back and we'll make sure that we respond to those
4 questions, if we don't do so satisfactorily tonight.
5 CHIP CAMERON: Okay. And I think that, when we
6 get to Janet and Tim's presentation, I think that may get us
7 more into what you're calling the biosphere, Sally, and
8 we'll see where we are there.
9 Are there other questions about the NRC's role in
10 this particular process, what the difference is between the
11 NRC and the Department of Energy?
12 Grant, do you want to come up and make a
13 statement?
14 GRANT HALLE: I'm Grant Halle.
15 My question is how can you reasonably have
16 expectations that you mentioned of what the DOE will do?
17 This is a very specialized field, and the basic fundamentals
18 are not there.
19 There's nobody in the DOE who has demonstrated
20 they understand the basic fundamentals of what we're
21 supposed to do.
22 I have yet to hear anybody from the NRC that
23 understands those basic fundamentals, and a couple of months
24 ago, I would have asked how you can regulate a
25 highly-technical process without having highly-technical

1 experts on your staff, and I have applied for a permit in
2 Nebraska to build a chemical plant.
3 Basically, what we do is we dissolve garbage and
4 turn it into plastics and sell it. So, the garbage dump is
5 no longer needed.
6 In Nebraska, the regulators sent four chemical
7 engineers over. They didn't understand the chemistry,
8 because all of us learned chemistry when we were in high
9 school, and we promptly forgot it.
10 They went through the details of what we were
11 doing, asked some tough questions, made some brilliant
12 observations, because they have a different mind than we do,
13 and I thought that's what regulators do.
14 I've been since to some other states and applied
15 for the same license, and when I started talking chemistry,
16 everybody in the room got angry. There was nobody in the
17 room that had a technical degree, chemical engineering
18 degree.
19 One guy told me, said what you did is you sounded
20 like a mad scientist who could make anything out of
21 anything, and I said that's what we do. It's an exciting
22 time to be alive. It's wonderful.
23 We are going to have multiple layers of protection
24 and so forth, absolutely meaningless because the guy that I
25 have hired does not know the fundamentals, the regulators

1 don't know the fundamentals. The whole thing is nonsense.
2 And that's what I see here.
3 I want you to address that.
4 CHIP CAMERON: Okay.
5 Grant, I think you bring up an interesting point.
6 As the NRC presenters come up, we are going to share their
7 credentials with you, but I think this may be a good time
8 for Bill to perhaps talk about the types of skills that we
9 bring to bear in the NRC staff for this project and also the
10 type of support that we get, perhaps, from the center.
11 GRANT HALLE: Bill has great skills. I have no
12 doubt about that at all.
13 CHIP CAMERON: I want him to address his staff's
14 skills, and then we'll go on to the next question.
15 Go ahead, Bill.
16 Thank you, Grant.
17 BILL REAMER: Let me just mention one other thing,
18 Grant. The projects, the Department of Energy projects that
19 you referenced -- Idaho, Hanford, Savannah River -- one
20 thing that's important, I think, for you to understand is
21 that we were not a regulator in those situations.
22 The one thing that is different about this project
23 is that the Department of Energy will be under our
24 regulation. So, that's point number one, and that's
25 important, I think.

1 And in terms of skills, we do have technical
2 skills in, really, all the relevant areas, both at the -- we
3 don't have the skills, perhaps, that the Department of
4 Energy has in terms of depth and number, but we have enough
5 to rigorously review this project.
6 We're going to need your support. If we don't
7 have your support, our job is going to be a lot harder, but
8 I think, in the end, it's not just technical skills, but
9 it's people who share, it's people who come, it's people who
10 listen.
11 I spent the afternoon -- I wish that she had been
12 here -- Lavonne Sovac took us around and showed us really a
13 number of the activities in the valley. It was a very
14 pleasant afternoon.
15 And this is the way we get to know you and get to
16 understand what potentially is impacted here, and I think
17 it's going to help us do our job, and we're ready to stand
18 and be accountable for the way we do our job.
19 CHIP CAMERON: Grant, let me see if we have other
20 questions out there, and then we'll get back to you.
21 GRANT HALLE: All right.
22 CHIP CAMERON: Thank you.
23 Do we have some other questions on NRC's roles and
24 responsibilities?
25 Yes, sir. Do you want to make a comment or ask a

1 question?

2 EARL McGEE: My name is Earl McGee.

3 Yucca Mountain is a farce. It's a joke. It could
4 be handled properly. In 1995, I said what is your
5 alternative if Yucca Mountain is found not to be suitable?
6 He said we have none. You go ahead and process it, break it
7 down, or whatever, but you don't just bury that in the
8 earth.

9 We have been burying our waste and poisons in the
10 earth too long, and with the population growth on the
11 planet, we keep doing this, and it's wrong. It should be
12 processed in some manner, and it would not cost anymore
13 money than we're wasting up on Yucca Mountain.

14 You have three faults out there. That is sheer
15 insanity. You say, well, everything is fine. It can stand
16 a 6.5 earthquake. I asked what happens to the underground
17 resource if we have a 6.5 tremor? That resource comes up.
18 The water comes up.

19 To me, it's all Mickey Mouse and associated with
20 Disneyland.

21 Thank you very much. Those are my concerns. It
22 can be done better if you people work hard, all of you, even
23 Department of Energy. I thank you for letting me speak. I
24 am concerned. It's sheer insanity.

25 CHIP CAMERON: Okay. Thank you for sharing those

1 concerns, and you raised a number of issues, one of which is
2 what's called the retrievability issue, instead of burying
3 the waste forever, providing for some future use, and some
4 of those will be addressed in later talks.
5 Bill, do you want to focus in on any of the
6 gentleman's concerns?
7 BILL REAMER: Well, I think Congress said in the
8 law, in the statute, that there will be deep geological
9 disposal, but there's an important qualification on that
10 that I think was being made in the comment, and that is if
11 it is safe, and it's our job to make sure that it is safe,
12 and you are counting on us to do that, and I understand
13 that.
14 CHIP CAMERON: Okay. Thank you.
15 Anymore questions on what the NRC's
16 responsibilities are or how you can participate in
17 influencing NRC decisions over this repository process?
18 Hold on one second. I want to see if someone who
19 hasn't spoken yet has a question.
20 Yes, sir. Would you like to ask a question?
21 CORBET HARNEY: My name is Corbet Harney.
22 Since 1953, the DOE has destroyed everything on
23 this earth and continue to destroy. When are we ever going
24 to wake up to the problem that we're causing? We're already
25 running out of water. We're running out of air. Our mother

1 soil is suffering.

2 Everything began to be diseased throughout the

3 country. We're running out of fish. We all know that. Why

4 is the DOE doing something doing something that's destroying

5 life?

6 I think each one of you people have to look at

7 DOE. Everyone who is working for the DOE should understand

8 that we are the people, the life that's born. Before we see

9 that, we know nothing. Why are we keeping this up?

10 Now the DOE say to us we are going to be

11 transporting this stuff from one end of this country to the

12 other. Are they going to pay more money? What is this for?

13 So far, this is what we all see, each and every one of us.

14 There's more death and cancer today than ever before.

15 Why are we keeping this up? Why can't we talk

16 about it and say leave it where it's at, not to bring it

17 here, on the highway, on the railroad, that's more

18 dangerous. What if a accident ever happens? Are you

19 prepared?

20 Is the DOE prepared how to clean the mess, or are

21 they going to rely on somebody else? And today, you people

22 better think about it.

23 We're already beginning to suffer throughout the

24 world. It's not going to help us at all.

25 Scientists today can come up with a different

1 power than what we've done, instead of this nuclear power.
2 We can have solar power, water power, air power, cleaner,
3 unless somebody is trying to make a million dollars. That's
4 what it looks to me like today.
5 I wish you guys would tell me how we're going to
6 continue to take more lives than what you have done so far.
7 Is this what you're trying to do? Are you working with the
8 hospitals? Are you working with doctors? Who are you
9 working with?
10 Maybe this is what's taking place, because you
11 know as well as I do, each and every one of us, there's more
12 sickness today than ever before. Since 1953 at the Nevada
13 test site, nobody paid attention.
14 This water flows from here to my area. It's going
15 to damage more land. None of you can see that. Let's not
16 let it happen. Let's not bury this stuff at Yucca Mountain.
17 That's part of Shoshone land. Why aren't you feeling worry
18 for the Indian people?
19 Maybe you want to eliminate the Indian people,
20 like you did. Is this what you guys are after? Eliminate
21 the life? This is our land, you know. The DOE has never
22 paid us, never. We still own the land, under the treaty.
23 If there is a law, like the white man says,
24 there's a law behind that treaty. Where is the law? Let's
25 do something. I want you guys to answer me that question

1 that I'm asking.

2 CHIP CAMERON: Okay. Thank you. It's Corbet

3 Harney? Okay. Thank you, Mr. Harney.

4 I think that, Bill, you may want to re-emphasize

5 what our role is with NRC, and there is one thing I think we

6 can say about the land ownership issue before we go on, but

7 go ahead, Bill.

8 BILL REAMER: Okay.

9 Well, as I described in my initial go-around, I'm

10 not a supporter of this project, the NRC is not a supporter

11 of the project, it's not an opponent of the project. It is

12 an evaluator of it, and our time will come to evaluate, and

13 the decision will be made based on all of the evidence, all

14 the facts, and it's not going to be some kind of deal or

15 some political pressure or something like that that is going

16 to decide this, at least at the NRC.

17 Now, in terms of the Shoshone claims to the land,

18 there is a requirement in our regulation that the Department

19 of Energy must demonstrate that it owns or controls the

20 property that is for a proposed repository.

21 That's part of our requirement, and so, in that

22 sense, it will have to demonstrate that it owns or controls

23 the land in question.

24 CHIP CAMERON: Okay. Thank you very much, Bill,

25 and we'll be back to you later on.

1 One quick question, and I think we'll move on to
2 the rule.
3 SALLY DEDLIN: Thank you, Bill. I am concerned
4 about the rules. There have recently been many articles in
5 the paper, and I have asked -- I've never gotten an answer
6 -- on the role of EPA in this mess.
7 In the six years, EPA has been noticeably absent,
8 and yet, they are the ones who the law says must specify
9 what the risk is, and I'm talking about the radioactive risk
10 that we're exposed to.
11 Now, why aren't they here? Why haven't they been
12 present for six years? I think that question has never been
13 asked, and it should be, and it should be answered, because
14 if you have a problem with EPA, imagine what we have.
15 CHIP CAMERON: Okay. I think that's a legitimate
16 question that we can offer some information on.
17 Bill?
18 BILL REAMER: The U.S. Environmental Protection
19 Agency does have a statutory -- a role by law to establish a
20 standard for a potential Yucca Mountain repository.
21 They are aware of the public meetings that we have
22 had, both in March -- and they did attend the meetings in
23 March. I don't believe that they're attending the meeting
24 tonight.
25 Other than to keep them aware of what we're doing,

1 I really am not able to provide much more information other
2 than that they are working on their standard -- this is what
3 we understand -- and that, if there is a proposal, then
4 there will be an opportunity for you here tonight -- in
5 fact, all of the people potentially impacted by a repository
6 -- to provide comments to the EPA.
7 CHIP CAMERON: Okay. And of course, on any of
8 these points, we are staying after the meeting is over, so
9 we can provide more information at that time.
10 We do have one final question on this segment, and
11 we're going to have to move on to the rule, but let's go to
12 this gentleman right here.
13 If you could just state your name for us, and
14 we'll take it from there.
15 WILLY FERGOSA: My name is Willy Fergosa. I'm a
16 concerned citizen. I just don't feel like we're being
17 protected by anybody. I don't feel any security. I don't
18 feel like you're really doing anything for us. I mean we
19 should have put a stop to that madness long ago.
20 All we're doing is putting more money into it that
21 we pay for with our taxes. You just start adding it up;
22 that's where all the billions go. Billions. I mean we have
23 people starving. Protect us from that. It's your job.
24 You're getting paid very well.
25 Listen to what I'm saying. Protect the people.

1 Don't protect the organizations. You all know what it is.
2 You're responsible. You took that job. There's a
3 responsibility to the public. I'm part of the public. I
4 don't feel protected. I don't.
5 CHIP CAMERON: Thank you. I think I can speak for
6 all of the NRC staff that we do take that responsibility to
7 protect the public very seriously.
8 Bill, do you have anything to offer on this?
9 BILL REAMER: Well, I think, you know, we -- as I
10 said, we want your support. Our job will be more difficult
11 -- I'm not saying it can't be done, but our job will be more
12 difficult without your support, but we -- if we want your
13 support, we need to earn your support.
14 We need to not just speak but to do, and I
15 understand that, and I expect to be held accountable for
16 that, and I expect to do my job, and I have a family and I
17 have children and my job is important to me, and I'm not
18 going to be happy if I don't do it correctly, and I commit
19 to you to do it that way.
20 CHIP CAMERON: Okay. Thank you, Bill, and thank
21 all the questioners and commenters on that segment.
22 Let's go to -- let's bring Janet Kotra and Tim
23 McCartin up to the table.
24 Our next two presentations are going to deal with
25 the NRC's proposed rule, and this is one speaking to some of

1 the concerns, one of the ways that the NRC is going to try
2 to protect the public through these rules, and Janet Kotra
3 is going to talk about why the proposed rules are being
4 developed now, why do they differ from the standards used by
5 EPA at the Waste Isolation Pilot Plant in New Mexico, and by
6 way of introduction, I would just say that Janet has been
7 with the NRC for about 15 years now.
8 She works for Bill Reamer in the high-level waste
9 branch, and Janet also has a Ph.D., a doctorate, in
10 environmental and nuclear chemistry, and she's one of the
11 principal authors of the proposed rule, and I'll turn it
12 over to Janet now.
13 JANET KOTRA: Thank you, Chip.
14 We've heard a number of questions that have
15 touched on the relative role of the Nuclear Regulatory
16 Commission, and I'm going to hopefully try and address what
17 the law requires of our agency and why we feel that it's
18 incumbent upon us at this time to put this proposal out and
19 seek your input on what we're considering in developing
20 criteria for evaluating Yucca Mountain.
21 One of the questions that Bill mentioned that we
22 heard at the meeting we held at Beatty in March is why is
23 NRC appearing to step out in front of the Environmental
24 Protection Agency?
25 I think Sally addressed their presence or their

1 lack of presence, and we're, hopefully, going to explain why
2 we feel that we are consistent with what's required in law,
3 and we wanted to put our proposal out to give it the
4 greatest possible opportunity for public input, and we
5 developed a very complex and important set of criteria that,
6 if it comes to that, will support a fair and dispassionate
7 and just evaluation of the facts that will come before the
8 NRC as the principle regulator of the facility.
9 Our responsibility is, first and foremost, to
10 protect public health and safety, and to echo what Jim has
11 said, we take that responsibility very seriously.
12 We also take very seriously our responsibility to
13 comply with the law of the nation and the direction that
14 Congress has given us.
15 In 1982, there was the Nuclear Waste Policy Act,
16 and that gave specific instruction to our agency, the
17 Nuclear Regulatory Commission, on what these criteria for a
18 repository should look like, and what Congress told us was
19 that those criteria had to provide for the use of a system
20 of multiple barriers, that the safety of the system should
21 not rely on one single element, that this should be a
22 combination of overlapping levels of protection, and my
23 colleague, Keith McConnell, is going to be talking a little
24 bit later this evening about how we intend to implement that
25 through the proposed rule that we're seeking comment on.

1 In addition, the Congress has asked us to provide
2 in our criteria a period of time during which the waste must
3 be retrievable, must be able to -- the Department of Energy
4 must demonstrate that it can go in and take this material
5 out for some specified period of time, and our proposed
6 regulation, as well as the generic regulations that we've
7 had in place for many years, addresses that very question.
8 We're also seeking comment in the proposal on that. Is that
9 the right amount of time?
10 Lastly, the Congress has asked us to conform to
11 generally-applicable in the past environmental standards,
12 and in this case, we conform to specific Environmental
13 Protection Agency standards for the repository at Yucca
14 Mountain.
15 Ten years later, in 1992, the Congress gave
16 additional direction and spoke, first and foremost, to the
17 Environmental Protection Agency, and they directed the
18 Environmental Protection Agency to develop new standards for
19 Yucca Mountain that would be health-based. The old
20 standards spoke about a release or the amount of material
21 but did not tie -- were not tied directly to the protection
22 of health in an explicit and transparent way. The law now,
23 under the Energy Policy Act of 1992, requires EPA to develop
24 health-based standards.
25 Those standards are to be based on and consistent

1 with a report that has been issued by the National Academy
2 of Sciences. That report, which is the report of the study
3 that the Congress directed the National Academy of Sciences
4 to do, to advise the Environmental Protection Agency on what
5 these standards should look like technically, was issued in
6 1995.
7 And lastly, these new standards that EPA has
8 proposed to issue are to be the only standards for Yucca
9 Mountain.
10 Now, what's especially important for us and one of
11 the reasons why we have worked as hard as we have to get
12 this proposal out for public review as soon as possible is
13 that the law gives us only one year for our implementing
14 regulations to this environmental standard.
15 This environmental standard is, as Sally has
16 indicated, to set a level of risk or a level of protection
17 for people.
18 There's a lot of detail in implementing such a
19 standard.
20 Things that relate to review of the design and
21 maintaining security at the facility and testing and
22 monitoring and all those other aspects that are part of the
23 proposal that we have put together are voluminous, and we
24 want the public to have as much opportunity to give us
25 feedback and help, the kind of help and support that Bill

1 was asking for earlier, to make this the best proposal that
2 we can make it.
3 Because we only have one year, we felt that it was
4 very important to get our thinking out in the public domain
5 so that you could evaluate it, be critical of it, to get
6 your feedback to us on how we can improve it.
7 I wanted to add -- I'll discuss this in just a few
8 minutes.
9 As Chip indicated, I'm also going to respond to
10 another question that we received in Beatty and in Las Vegas
11 when we were here in March, which is why are we doing
12 something different than was done for the Waste Isolation
13 Pilot Plant in New Mexico.
14 Some of you may be aware of that facility for
15 trans-uranic waste. It is not a repository for spent
16 nuclear fuel, but it is a deep geologic disposal facility,
17 and it has been certified by the Environmental Protection
18 Agency not that long ago.
19 In 1992, the Congress also passed another law
20 called the Land Withdrawal Act, and that law stated that the
21 older standards that EPA had used or has used since to
22 certify the Waste Isolation Pilot Plant are not to apply to
23 Yucca Mountain.
24 So, why now? Some of what I just said -- the law
25 requires us to conform very quickly. It's a very aggressive

1 schedule.

2 We know that the EPA standards are in preparation.
3 When they reach a point where they can issue a proposal, I
4 understand it is their intent to have public meetings and to
5 seek public comment, as well.

6 The recommendations from the National Academy of
7 Sciences upon which these standards are to be based have
8 been available since 1995.

9 So, we have a general sense of the direction with
10 which EPA must participate, and we've known that now for
11 coming on four years.

12 So, we felt fairly confident that we had a good
13 idea of, in general, what those EPA standards would look
14 like, and not to say it too many times, but we wanted to
15 have the most timely and meaningful public involvement and
16 our own fairly detailed criteria, and so, we felt it was
17 important to get that proposal out there.

18 With regard to why there are different standards
19 for Yucca Mountain than for WIPP, the law has directed the
20 Environmental Protection Agency to employ a different
21 strategy, to look at a strategy that more clearly and
22 transparently tracks to the protection of the individual.

23 The National Academy of Sciences issued a fairly
24 thick report. I have it with me tonight if you'd like to --
25 are not familiar with that report. It is available through

1 a number of different avenues, and I'll be more than happy
2 to discuss with any of you how you can get a copy of it.
3 But in essence, one of the most important points
4 the National Academy of Sciences report made in 1995 was
5 that the overall performance of the repository is protecting
6 public health and safety and that environmental standards
7 for it and implementing regulations issued by the Nuclear
8 Regulatory Commission should focus and be clearly tied to
9 meeting that safety objective.
10 We believe that we have put forward a proposal
11 that protects people from all sorts of exposure from the
12 facility and that no single path, including ground water,
13 should result in an unacceptable risk, and we believe that
14 that is consistent with what -- that our proposal is
15 consistent with that, and again, as Bill has said and as all
16 of us here tonight are here to tell you, protecting people
17 near a repository is the primary objective of NRC's health
18 and safety program for disposal of high-level waste. That
19 is our job, that is our responsibility, and we take it very
20 seriously.
21 What have we done to prepare ourselves to issue
22 this set of criteria for public comment?
23 We have supported and interacted -- the staff of
24 our agency, individuals here tonight have worked with the
25 staff of EPA and have encouraged their development of

1 protective, practical, and scientifically demonstrable
2 standards.
3 We have proposed new regulations that we believe
4 focus on what is most important for safety, that are
5 protective, that are generally consistent with the
6 recommendations of the National Academy of Sciences, as
7 Congress has directed, and are scientifically sound and
8 demonstrable.
9 The last thought I want to leave you with is we
10 want your input. We want to know that you believe that our
11 proposed regulations provide a sound basis for making the
12 kind of judgement of safety that Bill has talked about at
13 length in his remarks.
14 And with that, I guess I would conclude and turn
15 it over to my colleague, Tim McCartin.
16 CHIP CAMERON: Okay. And while Tim is going over
17 to take his seat, one question, perhaps, for later on,
18 Janet, is perhaps is there a simple explanation of the
19 difference between the trans-uranic, I think you said, waste
20 that's supposed to go into WIPP versus the high-level waste,
21 spent fuel, that's supposed to go into the repository? It
22 might be useful later on, during the discussion, to address
23 that.
24 Next we have Tim McCartin from the NRC staff on
25 the issue of how will NRC regulation protect people and

1 ground water near Yucca Mountain, and Tim has a Master's
2 degree in physics.
3 He also works in the high-level waste branch for
4 Bill Reamer, and Tim has 20 years experience in what's
5 called performance assessment of high-level repositories,
6 and I would just want Tim to try to give us a simple
7 explanation of perhaps what performance assessment is. It
8 sounds like something really fancy, but I think it comes
9 down to something very simple.
10 But Tim, I'll let you get you on with your
11 presentation.
12 TIM McCARTIN: Okay.
13 Briefly, performance assessment is the evaluation
14 of the behavior of the repository over time, with the
15 eventual performance that we're looking at is dose to
16 individuals, and so, we're examining how the waste package
17 will change over time, how the fuel will eventually leak in
18 limited amounts, how it will be transported in the
19 geosphere, in the water, out to where it potentially can be
20 exposed by individuals, and performance assessment involves
21 that integration of all those attributes of the behavior of
22 a repository.
23 Today, I'd like to talk to the approach in our
24 regulation for protecting the public and ground water,
25 really with respect to three particular areas.

1 One, DOE is required to do an evaluation of
2 safety; two, DOE is required to have plans and procedures
3 for safety; and three, DOE is required to have continued
4 oversight of the repository.
5 Generally, to date, because the evaluation of
6 safety involves estimating doses to individuals, a lot of
7 the focus and attention has been on those dose estimates.
8 However, if DOE eventually gets a license from the NRC,
9 there's additional requirements to ensure protection of
10 safety.
11 The plans and procedures are required to ensure
12 that the repository is operated safely, and the monitoring
13 and continued oversight of the repository are there to
14 ensure that future generations are also protected in the
15 Yucca Mountain area, and I'd like to talk to each one of
16 those areas in a little more detail.
17 In terms of the evaluation of safety, we're
18 talking about estimating doses to individuals, and Sally, I
19 think this is where the biosphere comes in.
20 When we're calculating these doses, we're
21 anticipating these doses to be far off in the future, we
22 need to make some assumptions with regards to not only the
23 people that are there but also the environment that they
24 live in, what types of plants, animals, crops are being
25 grown, and we would classify the biosphere is that

1 environment that the people that we're estimating these
2 doses for live in, and when we looked at the Yucca Mountain
3 area -- and I did bring a map of vegetation of the region
4 over there that you are welcome to go up and look at
5 afterwards -- certainly when we look at how ground water
6 might be used in the area, in the Amargosa Farms area, there
7 are farming activities.
8 Farming is important in estimating doses because
9 of all the pathways, is what we refer to them, ways that
10 people can receive exposures of radiation. There's drinking
11 water, there's crops that could be contaminated, there's
12 animal products such as milk, eggs, etcetera, that can also
13 be contaminated.
14 In assessing the performance of the repository, we
15 want to make sure and take -- cast the broadest net so that
16 we're evaluating all the different possibilities that
17 exposures could occur.
18 In our regulation, we specify a farming community.
19 The reason for that is we expect the Department of Energy to
20 evaluate doses that could result from water, crops, animal
21 products. So, we're looking at a wide range of potential
22 exposures.
23 Additionally, if you look at that map later,
24 you'll see that the concentration of farms are really on the
25 order of 20 to 25 miles away from the site. However, in

1 evaluating soil conditions, depth to water, we thought it
2 was reasonable to assume that a farming community could be,
3 in the future, closer to Yucca Mountain than is currently
4 there today.
5 So, we specified a location approximately 12 miles
6 from Yucca Mountain. That was done. We feel the soil
7 conditions are still appropriate for farming. The depth to
8 water is still reasonable that people could farm at that
9 location.
10 So, the biosphere -- we've also specified we
11 believe, over the future, that the conditions at Yucca
12 Mountain would still remain the same, arid to semi-arid
13 conditions.
14 So, the types of crops that you see growing here
15 today -- there's fruit, there's alfalfa, there's cows,
16 there's chickens, etcetera, there's a wide range of things.
17 We're asking the DOE to conduct a survey of the area to see
18 all the things that are grown, and we would expect them to
19 factor that in to the dose assessments.
20 Secondly, these performance assessments not only
21 look at what they expect, but we require DOE to look at what
22 might go wrong.
23 In terms of the operation of facility, DOE is
24 required to look at potential applicants and evaluate the
25 consequences of that while a repository, if a license is

1 granted, is being operated.

2 Afterwards, we require in the performance

3 assessment for DOE to look at what we call disruptive

4 events. Disruptive events are things such as seismic

5 events, fault movement, igneous activity -- volcanoes, in

6 other words. How will that impact the long-term behavior of

7 the site? All that's factored into the safety assessments.

8 Obviously, all these assessments are built upon

9 assumptions, and they're only as good as the information we

10 have to date. That's very important. NRC recognizes that.

11 We require the DOE to update these evaluations.

12 Once a license is granted, they need to construct

13 the site. They'll learn more things about Yucca Mountain

14 during that construction. During waste emplacement, they'll

15 learn other things. Site investigations are continuing.

16 The DOE is required to continually update these evaluations

17 to make sure we're using the best available knowledge that

18 we have.

19 And finally, they need to monitor. We expect the

20 DOE to have a monitoring program to ensure that all these

21 assumptions we're making are still true; the repository is

22 behaving as we have expected. Monitoring is a very

23 important part of that program.

24 All of those things rolled together in that safety

25 evaluation ensures that we use the best available

1 information and the site is monitored, including ground
2 water.
3 Next is safety evaluation by itself is not
4 sufficient. DOE must be prepared for what could happen.
5 There will be plans and procedures, once DOE is granted an
6 authorization to construct.
7 There will be requirements for the training,
8 certifying, and re-qualifying the workers to ensure that the
9 workers have safety as the number one priority in what
10 they're doing at the site.
11 Additionally, we do not expect to have accidents.
12 However, we require DOE to be prepared. We have emergency
13 plans in place for the unexpected. These plans would be
14 there in the event of a radiological release.
15 And finally, as Janet noted, waste retrieval. If
16 at any time in this process something comes to NRC's
17 attention that says waste cannot be safely disposed of at
18 Yucca Mountain, we have the option for retrievability, to
19 remove the waste from Yucca Mountain.
20 Finally, continued oversight of the repository.
21 Future generations need to be protected.
22 Once again, NRC has requirements for land use
23 control. We need to control the area around Yucca Mountain.
24 We need to provide permanent markers, preserve records so
25 that future generations know what's disposed of at Yucca

1 Mountain.

2 Additionally, there's long-term repository
3 monitoring to further ensure that the safety of the people
4 near Yucca Mountain is protected.

5 And finally, what we place in our rule today we
6 believe is appropriate. However, once again, over the next
7 years, during the construction, if that's granted, waste is
8 emplaced, we will learn more and more.

9 NRC has a process. We call them licensing
10 conditions, to put additional requirements on the DOE to
11 ensure safety beyond what is already in the regulation
12 today.

13 Going back to all of this, we believe that the
14 requirements ask for DOE to evaluate safety, have plans and
15 procedures, and to have continued oversight. DOE is
16 required to do that. The question is what will NRC do?

17 NRC's function is one of review, inspection, and
18 enforcement. How will we review things? As the gentleman
19 said there, for the calculational part of the evaluation, we
20 fully expect to do our own evaluation.

21 We have a number of scientists and engineers at
22 NRC who have been working on this problem for 10-plus years,
23 evaluating performance of Yucca Mountain. We will do our
24 own independent calculations to help us verify that the DOE
25 analyses are correct.

1 Once again, that's not enough. The plans and
2 procedures -- what will we do there?
3 We will not just review their plans and
4 procedures. We will come up and inspect, and the inspection
5 is done to determine that DOE's plans are appropriate and
6 they are ready, and we will enforce all the regulatory
7 requirements.
8 How can the public help? As you've heard from
9 Bill and Janet, we've come up here to hear your opinions,
10 your comments, your suggestions. We have put in the
11 regulation what we think are a number of ways that we can
12 ensure safety of the public in the Yucca Mountain area.
13 We may not have thought of everything. We may not
14 have worded it as clear as we should. Maybe these
15 requirements aren't clear that DOE has to do these things.
16 We're interested in your comments, your
17 suggestions for additional requirements, different ways we
18 can word things in a more clear fashion, etcetera, and so,
19 any comments you can give us to improve our regulation will
20 be appreciated, and as Bill indicated, continue to
21 participate.
22 This is not the last meeting that we're going to
23 be here in this gym. We will be out here again. As we
24 learn more about Yucca Mountain, as the EPA standard comes
25 out, we want to hear your comments.

1 With that --

2 CHIP CAMERON: Okay. Thank you very much, Tim.

3 You've just heard two presentations, one from Tim,
4 one from Janet, on the NRC's proposed rules, and as Tim very
5 well said, we want to make sure that people understand these
6 rules, that they're as good as they can be, and I wonder if
7 anybody in the audience has any comments or questions about
8 these proposed rules.

9 Let me start back here with Ralph McCracken, and
10 then we'll come up to this front row.

11 Ralph?

12 RALPH McCRACKEN: Ralph McCracken, Amargosa
13 Valley.

14 Tim, I recognize you from the last meeting, and
15 I've got a plus for you and a minus for you.

16 This evening, I'm sitting here listening to you,
17 and I'm saying this guy is a mouthpiece for the NRC and he's
18 saying disposal in Yucca Mountain, disposal, disposal,
19 disposal.

20 I understood this was supposed to be a storage
21 situation where it was retrievable, not just disposed of in
22 Yucca Mountain and walk away from it, which is what you kind
23 of make it sound like.

24 I understood that retrieval was very important in
25 this whole project, that if some kind of technology came

1 along years or centuries or whatever later, that we could --
2 we, the world, could do something a little more prudent with
3 this stuff and get it out and do something with it.
4 But when I hear you saying dispose at Yucca
5 Mountain, dispose at the mountain, it makes me go wait a
6 minute, what's actually going on in this guy's mind when
7 he's making these rules and regulations?
8 That's that one.
9 TIM McCARTIN: Could I respond to that?
10 RALPH McCRACKEN: Sure.
11 TIM McCARTIN: The term, you're correct, is
12 geological disposal. We are not storing the waste in Yucca
13 Mountain. It is for disposal. Retrievability is a big part
14 of that in that, if we are wrong, we need to be able to go
15 in and remove the waste, but storage is a -- is not the term
16 that's used for the project.
17 JANET KOTRA: Ralph, good to see you again.
18 Thanks for coming down.
19 I think we need to be perfectly honest here. What
20 the Congress has asked us to do and has asked EPA and the
21 NRC to do is to, the EPA, develop standards for disposal,
22 NRC to develop implementing regulations for disposal.
23 The NRC -- the law requires NRC to provide for a
24 period of retrievability, which currently right now is about
25 100 years, but once that 100 years is over, the concept --

1 and we've laid this out in the concept section of the rule
2 -- is that there would be a closure and a disposal.
3 The law requires for permanent oversight on the
4 part of the Department, but the retrievability period is --
5 to be perfectly frank with you -- is a 100-year period, and
6 the goal there is that we are requiring the Department to
7 allow for complete retrievability for that period, but after
8 that period is over -- and there are these steps that Bill
9 has laid out, where we may need successive regulatory
10 decisions, once -- if we get to that point and the
11 collective wisdom of the Congress and the nation and the
12 national program is yes, disposal is -- continues to be the
13 national policy, as it is right now, then it will be closed,
14 and that period of retrievability would be over, but there's
15 so many steps of review and licensing that we have to get
16 through to get that point -- but please, I don't want you to
17 get the mis-impression that this is going to be retrievable
18 forever.
19 No engineer or scientist could honestly guarantee
20 that.
21 CHIP CAMERON: Janet, perhaps it would help to
22 explain what the purpose of the retrievability period is.
23 It's not, as the gentleman earlier said, to decide whether
24 we can do something, ultimately, different with this waste.
25 JANET KOTRA: Actually, it is to allow for that

1 possibility. It allows for, during that period, if the
2 national policy were to change, that that option of taking
3 the material out and doing something else with it is
4 preserved.
5 There's also reasons of retrievability for safety,
6 if you're finding, for example, in your monitoring that the
7 models and assumptions that you use about the biosphere,
8 about the performance of the facility, about the performance
9 of the geology that we have been studying for a long time,
10 but our knowledge is not perfect, if any of those things
11 would suggest that we have based previous decisions on
12 incorrect or incomplete information, then we would also want
13 to retrieve.
14 But this is a finite theory. We're not saying
15 that it is permanently retrievable. Then you're right that
16 disposal would be a misnomer, but the law requires us to
17 develop criteria for disposal. That's the national policy,
18 and that's the law under which we are doing this.
19 RALPH McCRACKEN: Okay. I got a good answer.
20 JANET KOTRA: Thank you for the question.
21 RALPH McCRACKEN: Thank you.
22 Now, don't go away.
23 JANET KOTRA: Okay.
24 RALPH McCRACKEN: You spoke, as Tim did, of
25 security of the area. There's a broader issue of security,

1 of human egress, human intervention, human whatever. You're
2 close to a military installation. Also, who would be
3 responsible for, in the long haul, making sure that this
4 doesn't become a real problem?
5 JANET KOTRA: Okay.
6 First and foremost, in terms of responsibility,
7 the Department, under the law, under the Energy Policy Act
8 of 1992, is requires to provide for permanent oversight to
9 provide assurance that there's no intrusion into the site.
10 You talked about the security aspects of that.
11 So, already under the law, DOE is required -- and
12 then, obviously, in order for us to have a complete set of
13 regulations, we would have to provide, in our regulations,
14 some oversight to ensure that DOE does, indeed, provide for
15 that kind of oversight.
16 Tim mentioned specifically requirements in our
17 proposal for an emergency plan, and the requirements for an
18 emergency plan have been very well worked out for a variety
19 of different facilities -- fuel cycle facilities, nuclear
20 power plants.
21 We have fairly elaborate and detailed requirements
22 elsewhere in our regulations that are referenced in this
23 proposal for how does a licensee of the Nuclear Regulatory
24 Commission develop an adequate emergency plan, and those
25 would take into account all of the things that are special

1 about a given site, and in this case, many of the issues
2 that you've mentioned are the types of things in the license
3 application we would expect DOE to provide complete and
4 competent and credible information to support their
5 assertion that they have a plan in place that takes account
6 of all of those factors, and we would evaluate that as part
7 of the license application.
8 RALPH McCRACKEN: Do I hear you saying that these
9 comments in this direction are inappropriate at this time,
10 that they should be brought up during the licensing
11 procedure?
12 JANET KOTRA: Absolutely not. We would like you
13 to take a look at what we have now in the proposal that
14 addresses the content of the emergency plan, and I realize
15 that, for those who are not familiar with the way we license
16 and oversee facilities, it's a tough read.
17 We're trying to work on plain English in our
18 regulations.
19 We have a long way to go, and we certainly want to
20 make these regulations as clear and as understandable as
21 possible, and if you want to talk to me afterwards, I would
22 be happy to show you where in the proposal specifically we
23 talk about an emergency plan, and it references another part
24 of our regulations, which I could send those to you, as
25 well, but they are not going to talk specifically about

1 Yucca Mountain, because each licensee is obligated to
2 provide an emergency plan that is tailored to that
3 particular facility.
4 So, obviously, rather than have individual
5 requirements throughout all of our regulations for every
6 licensee, we have to say, okay, we have to address these
7 types of threats.
8 RALPH McCRACKEN: That's a pretty general
9 approach.
10 TIM McCARTIN: However, in the assessment on the
11 operation of the facility, they will have to evaluate
12 things. Being close to an Air Force base, they have to
13 evaluate the likelihood of problems with air crashes.
14 CHIP CAMERON: I think the comment is perhaps that
15 there should be something more specific in there on that.
16 Thank you, Ralph.
17 Yes, ma'am.
18 GLYNN HAZLETT: My name is Glynn Hazlett.
19 If you look at the geology reports on Yucca
20 Mountain, you'll see it's totally unsuitable because of the
21 type of rock, and why was there never any other site except
22 Yucca Mountain considered?
23 You can talk about safety, talk about what if, but
24 the geologist's report states it's a totally unacceptable
25 place to store nuclear waste of any kind.

1 Look at the earthquake activity. It's very active
2 out there, and there is no way that they can assure that an
3 earthquake above 6.2 is not going to occur.
4 CHIP CAMERON: Janet or Tim, can you talk
5 generally about how the proposed rules -- how we would look
6 at the geology of the area?
7 TIM McCARTIN: Well, certainly, I think, as Bill
8 pointed out, we are not a proponent for the site. Right
9 now, all the information is not in. We will make our
10 decision on safety after all the information is in that DOE
11 is collecting.
12 Certainly, seismic events are a fact at the site.
13 We fully expect DOE has to evaluate the behavior of the
14 repository over time, the seismic events.
15 The ground water pathway is the most likely
16 pathway for radio-nuclides to leave the repository. The
17 evaluation of that pathway will be looked on extremely
18 closely in all of NRC's evaluations.
19 In addition, that's the pathway that we expect to
20 be monitored for continued evaluation of the behavior of the
21 repository.
22 JANET KOTRA: I think I also heard the question or
23 talk about how Yucca Mountain got to be the only site that
24 was under consideration, and I think that's a fair question.
25 I didn't have time in my presentation to go into

1 more detail on the legal history, but there was -- under the
2 Nuclear Waste Policy Act, there were three sites that were
3 originally looked at by the Department.
4 In 1987, the Congress passed another law that told
5 the Department of Energy to only study Yucca Mountain at
6 that time, and it is that process of studying -- they call
7 it site characterization -- that is going on right now, and
8 we have responsibilities to provide input to the Department
9 of Energy on their studies of the geology and where we feel
10 they could get more information before they're even ready to
11 provide, present a recommendation of the site, and we've
12 been doing that, under the law, but the Congress was the
13 decision-making body who said we will spend the national
14 resources to study one site at a time, and right now, that
15 site is Yucca Mountain, and until such time as that site is
16 found not suitable, the Department is given the
17 responsibility to continue characterizing it.
18 We've been given the responsibility to continually
19 interact with them and provide additional recommendations
20 and suggestions, because they're not licensed yet. They
21 will be, if they do submit a license application.
22 CHIP CAMERON: Okay. Thank you, Tim. Thank you,
23 Janet.
24 Corbet, did you have something you wanted to say?
25 CORBET HARNEY: Are you forcing this down our

1 throat whether we like it or not? I still ask that
2 question.
3 Where is your paper saying you own the land?
4 Under the treaty of 1863, the Shoshone people still own the
5 land. Where is the law, or is there a law? When it gets
6 contaminated, then what do we then?
7 Ask those questions that I'm asking you. Ask
8 Congress, where is their piece of paper that took our land,
9 under the law? They haven't showed us a document yet today.
10 Let's look at the law, if there is such thing as the law.
11 CHIP CAMERON: Okay. Thanks, Corbet. I think we
12 talked about the land issue earlier in terms of what the
13 rules require.
14 Tim, do you want to say anything to Corbet's point
15 about the release of radioactivity to the ground water? Do
16 you want to talk about how our -- or reiterate, I guess, how
17 our rules take that into account and try to protect against
18 that?
19 TIM McCARTIN: Well, certainly, the evaluation of
20 safety would include the releases to ground water and
21 evaluating that over the entire 10,000-year time period to
22 ensure that the releases are sufficiently below the
23 regulation to ensure public health and safety.
24 That being said, there's monitoring requirements,
25 and the monitoring requirements would be to understand the

1 behavior of the repository before there's a problem.

2 CHIP CAMERON: Okay. Thank you.

3 Let's go to Willy, and then we're going to go

4 Earl, and then we're going to go to this lady in the back.

5 All right.

6 WILLY FERGOSA: Thanks, Chip.

7 Well, I've been sitting here again listening to

8 everyone. I'm, once again, really impressed. You folks are

9 really intelligent.

10 Yucca Mountain isn't just a test to see how it is.

11 You've already made the tunnel. It's already in there.

12 It's not just like we tested a part of something to see how

13 it is. You've gone in there and made a whole tunnel, so

14 that we don't have a choice.

15 It's already done, and all you're doing is

16 allowing that to happen, as I see it, and you're pretty

17 smart people, and I'm sure you can get it done. If that's

18 really your job, then I feel like our trust has been

19 abridged, because we have this thing over here, and that's

20 the only thing we have.

21 So, what are you going to do to protect us? Are

22 you going to just allow it to happen? That's all I see. I

23 mean I'm trying to think of, well, how are they doing all

24 this?

25 All I can see is you're allowing it to take place.

1 You know, with your intelligence, can't you help us? You
2 know, does that mean you have to go against your
3 supervisors, against people above you, because you're
4 actually going to do something to help us out?
5 I'm just still pretty confused by this whole
6 thing. It just seems like we don't have anybody really
7 helping the people.
8 CHIP CAMERON: Maybe it would be helpful if we
9 just underlined the statement again between DOE and NRC.
10 Bill, do you want to say anything at all about
11 Willy's comment?
12 BILL REAMER: Well, I hear the concern, and I can
13 tell you it's not a done deal, from my standpoint. I have
14 not even seen a demonstration by the Department of Energy
15 that waste can be safely disposed of.
16 The Department has many steps to go through before
17 waste will ever be brought to this site. They have to
18 complete their evaluation of the site.
19 They have a recommendation to make, a
20 recommendation that the President of the United States has
21 to approve, a recommendation that the Congress has to
22 approve, and if those steps are cleared and if the
23 Department accomplishes that, if there is a recommendation
24 that is approved, only then will there be a license
25 application, and that license application will be given to

1 the NRC, and the decision will not be a done deal.

2 The decision will be made on the facts, and that's

3 my commitment. I've said that, and that's true.

4 CHIP CAMERON: Okay.

5 Let's go to Earl, and then we're going to go to

6 the woman in the back. Earl has a question on

7 retrievability again.

8 Go ahead.

9 EARL McGEE: You're looking at this as a

10 repository?

11 JANET KOTRA: No, I want to make that clear, that

12 we have a requirement in our regulations that the Department

13 maintain retrievability of the waste for up to 100 years,

14 longer -- we can consider a longer period of time, and

15 that's one of the aspects of the proposed rule that could be

16 changed, based upon public comment.

17 EARL McGEE: We can keep it at the site safely for

18 100 years.

19 JANET KOTRA: That's what we expect them to do.

20 We expect them to keep it retrievable for at least 100

21 years.

22 EARL McGEE: Keep it at the site.

23 JANET KOTRA: Oh, you mean at the individual power

24 plant site.

25 EARL McGEE: Yes. We ought to get rid of EPA,

1 because you've got to be concerned with people. You've got
2 to have some independence, the concern of people.
3 JANET KOTRA: And that's our concern, too. That's
4 our primary concern in fulfilling our mission.
5 EARL McGEE: I think you're doing a good job, but
6 I think that human values is out the door. It's like we
7 have a crystal ball. This is a problem. We have to be more
8 concerned.
9 We haven't had an earthquake over there for 100 or
10 200 or what have you years, but you're talking about 10,000
11 years when you put that stuff in the ground. That's a
12 problem. You can't tell what's going to happen tomorrow,
13 next week, a month, a year, or 100 years or 1,000 years.
14 The responsibility is to the people and the land that they
15 occupy.
16 CHIP CAMERON: Okay. Thank you, Earl, and I think
17 that the staff has the gist of the retrievability comment.
18 Yes, ma'am.
19 MARY EASTON: My name is Mary Easton. I live in
20 Amargosa Valley.
21 I'm simply going to ask you to think about the
22 fact, would you like to have this right out your window?
23 Right out my kitchen window is Yucca Mountain. Just think
24 about that. I'm not asking you for an answer. I don't even
25 want an answer. But think about it.

1 You don't live out here. You live elsewhere.
2 Just think about it.
3 JANET KOTRA: One part of the decision -- and as
4 Bill has said many times, that decision is a long ways away
5 from being made, and it's by no means a done deal, but if I
6 am part of a decision that says yes, this is protective of
7 public health and safety, then, yes, if it were outside my
8 kitchen window and my children and my husband were exposed
9 to it --
10 MARY EASTON: And grandchildren.
11 JANET KOTRA: -- and my grandchildren and their
12 grandchildren, I would feel they would be protected, but
13 that would be only after that decision was taken in view of
14 all of the facts that will come before us.
15 We're not there yet, but if we were -- and I'm
16 part of this issue that says yes to that question -- then I
17 couldn't make that answer any different than if I did live
18 outside the site.
19 MARY EASTON: I read a book about it.
20 JANET KOTRA: Is this the viability assessment
21 document that the Department has put forward? Yes. Okay.
22 One of the five books that Sally was referring to earlier.
23 MARY EASTON: It's hard to understand.
24 JANET KOTRA: Right.
25 MARY EASTON: I read through, and nine-tenths of

1 it I didn't understand. With all of the figures that they
2 had, approximately 20 people in this valley would be
3 over-exposed. Twenty people is too many.
4 Essentially, when you think of it, I'm probably
5 one of those first 20 people, because I'm one of the closest
6 ones to it. So, it really upsets me, and my grandchildren
7 live right next door.
8 So, if it isn't me, it's going to be them. Just
9 think about it when you're making your decisions. I realize
10 there's not very many of us out there, you know, compared to
11 Las Vegas or even Beatty, but we're the closest. We're the
12 very closest, and our ground water is going to be most
13 affected.
14 CHIP CAMERON: Okay. Thank you, Mary, and I'd
15 like to thank Tim and Janet.
16 We're going to bring up our next panel, and we
17 will get to you, Grant, but let's get our next panel up.
18 PAM RODRIGUEZ: Excuse me. I have a question for
19 this panel.
20 CHIP CAMERON: Okay.
21 PAM RODRIGUEZ: Pam Rodriguez. And I'd like to
22 know what exactly and specifically are the evacuation
23 procedures set up and in place for the surrounding community
24 in the event of a radioactive release at the site, and if
25 there is a paper on this, I'd like to see it.

1 I'm also wondering, will you be answering the
2 question for the DOE, or should I wait for the answer, or
3 will they answer this question for me separately? Are you
4 speaking for them now, or will you suggest how they might
5 answer in the future?
6 TIM McCARTIN: I'm going to respond to your
7 question, but I'm not answering for the DOE. What the
8 regulation requires is that, when they submit a license
9 application, a part of that license application is an
10 emergency plan.
11 The application has not been submitted. The
12 Department of Energy would have to talk to how far along
13 they are in preparing a license application, including the
14 emergency plans.
15 CHIP CAMERON: Okay. Those were two good
16 questions. I'm not sure that you got your answer, but
17 perhaps we can get you some information from the Department
18 of Energy. But Tim was speaking as an NRC employee.
19 Let's go to the next panel so that we have time to
20 get everything in, and as I mentioned earlier, these were
21 two specific issues that came up when we were out here the
22 last time for public meetings, and first of all, we're going
23 to have Aby Mohseni from the NRC staff address how the NRC
24 regulations affect children and infants, and Aby has a
25 Master's degree in nuclear engineering.

1 He's worked as a health physicist for the State of
2 Washington, and now he works directly for the Director of
3 the Office of Nuclear Material Safety and Safeguards.
4 Aby, are you all set? Are you ready?
5 ABY MOHSENI: I am, yes.
6 CHIP CAMERON: All right.
7 ABY MOHSENI: Thank you.
8 Good afternoon. It's a pleasure to be here, and
9 I'm here because, in the last few meetings that my
10 colleagues attended -- I was not there -- questions were
11 raised about the standard that NRC uses, whether or not that
12 standard is protective of children and infants, and that led
13 to a lot of good discussions, and that's an example of open
14 debates that we have, and I'm here to explain where -- what
15 those standards mean in terms of public health and safety,
16 specifically children and infants, and in the context of the
17 proposed rule, Yucca Mountain, whether or not the standard
18 will adequately protect children and infants.
19 Now, that is a specific standard relative to the
20 overall that we have. I realize you cannot see that, and
21 I'm not used to sitting behind the microphone either. We
22 usually do our work in writing, and it's kind of interesting
23 to have a first public interaction here.
24 The NRC standards -- the basic question was will
25 NRC regulations protect infants as well as adults? There is

1 one and only one reason for the existence of NRC, and that's
2 safety, and if that's not achieved, then there's no other
3 reason for us to exist.
4 We are not DOE. We are not EPA. We are not
5 Department of Transportation. The NRC is an independent
6 agency, as Bill mentioned, with one and only one major
7 concern, and that's safety, and if safety cannot be
8 demonstrated, the NRC will not grant a license.
9 That's its mechanism of saying no, this activity
10 will not occur, period, because you have not demonstrated
11 that you can adequately protect public health and safety,
12 and here's the authority that can stop you, and that's the
13 NRC, and as part of that group, the whole process is open to
14 the public.
15 It's one of the unique characteristics of this
16 agency, to do everything open, in the public. You can look
17 over our shoulder at everything we say or do or explain or
18 assume, and we've made some assumptions.
19 Right now, the standard which has been generated
20 not by the NRC -- we did not originate the standards for
21 public health and safety. We are part of the Federal
22 Government.
23 The standards were generated by non-governmental
24 agencies, experts in the field, at the international and
25 national levels. The NRC, when it determined that it could

1 adequately protect public health and safety, it adopted
2 those standards.
3 So, those standards are uniform across the world,
4 not just us, and the public dose that's allowed under our
5 standards is a dose that is accepted across the countries,
6 in Europe, everywhere. We're not the originators of those
7 standards.
8 And are they protective of infants and children?
9 The answer is absolutely yes. We would not be doing our job
10 if there was a segment in our society, specifically the most
11 vulnerable segment, that was not adequately protected.
12 I have no other reason to exist except to
13 demonstrate what the standard -- how the standard protects
14 public health and safety. So, we have no interest in seeing
15 Yucca Mountain get licensed or, for the matter, any other
16 facility that comes to NRC.
17 Our job is to see that those standards that
18 protect public health and safety are met. If they're met,
19 we have no ax to grind against anyone; we're not opposing
20 anyone; we're not part of any interest group, nothing.
21 We're an independent agency. Independent we are,
22 and that's different than DOE, that's different than EPA,
23 that's different than any other Federal agency that's part
24 of the -- you know, the President decides, and there's some
25 political influence, if you will, but with NRC, there is no

1 such political influence.

2 NRC is an independent agency, and we're open to
3 the scrutiny by you, the public, people most interested for
4 this particular case at hand, and yes, we can show through
5 various methods and techniques that, indeed, the NRC
6 standards are adequately protective of all segments, age
7 groups, everyone, the youngest to the oldest.

8 When we -- there's no reason for us to choose
9 standards that do not adequately protect a segment and open
10 us to criticism. Why? There's no interest in that, to not
11 perform our jobs as we are entrusted by the public to do.

12 So, for the proposed 25-millirem standard, which
13 is a fraction of the public dose, which is 100, and it
14 wasn't -- did not originate with NRC, it was -- did not
15 originate with any government, DOE has nothing to do with
16 it, originated with national groups, independent of
17 governments, the 100-millirem is adequately protective of
18 all age groups, all genders, no discrimination against
19 anyone in terms of protection, and to allow -- and it's
20 based on a lifetime dose.

21 So, we broke it down into annual doses and
22 therefore ensuring that no one over the course of their
23 lifetime exceeds the standard.

24 The proposed 25-millirem that is in the -- now
25 subject to public comments is a fraction of that. It is

1 consistent with every recommendation that has come out from
2 every body, internationally and nationally, that this is a
3 reasonable fraction to choose as a standard for such a
4 facility.
5 It's no different than our other licensees, but
6 one important aspect is that, if you say 25-millirem is a
7 standard, a health standard, does that mean that anybody
8 living around the area, on the borderline, will receive
9 25-millirem? The answer is no, categorically no, and let me
10 demonstrate why.
11 We've had over the years, in the number of years
12 that NRC has been a regulatory agency, there's been a lot of
13 radioactive licensing going on, a lot of activity out there
14 that dealt with radioactive material that NRC licensed.
15 Only less than 1 percent of all the regulatory
16 activities that have taken place have contributed to the
17 background dose that we have. The background dose -- 300
18 millirem is the average background dose.
19 If people lived -- licensees lived up to the level
20 of standards, the dose would be much higher and still
21 acceptable, but the fact that you set the standard, it
22 doesn't mean people live by -- at that exact standard. The
23 history of licensing shows that we are less than 1 percent
24 of the standard that's out there.
25 People usually use all kinds of mechanisms not to

1 even get close to the standard.

2 So, the standard is used to demonstrate on paper
3 and to assure everyone that, indeed, you will not even get
4 close to a fraction of what the allowable dose is, and in
5 practice, they are much lower, much lower, and in this
6 particular situation, you will have decades, hundreds of
7 years that you can always retrieve any potential source of
8 leakage and put an end to it.

9 The retrievability aspect of this particular
10 project allows that to occur.

11 In other cases, we do not have that luxury of
12 being able to actually put an end to a leaking -- we live
13 with the standard and we basically make decisions, but in
14 here, the intervention is allowed up to 100 years, which is
15 a good demonstration, allows us enough time to ensure that
16 the standard is met and not even close. We won't even
17 expect them to even get close to it.

18 But that's the kind of -- that's our job, one job,
19 nothing else. That's why we're here, one job, and if you
20 are not satisfied, we will go back. As you get comment and
21 you provide comments, we will go back and revisit the
22 numbers.

23 We revisit what our proposals are, and this is
24 what Bill said, this is what the whole team said. This is
25 our commitment, this is our accountability.

1 DOE has not been an NRC licensee with the Nevada
2 test site or others, so there's no comparison to be made.
3 NRC has a reputation with licensees. It has lived up to
4 that reputation, and it will continue to do so.
5 Our commitment to you is basically we are a safety
6 agency. We're not an agency that promotes any repository
7 here or elsewhere.
8 I think I'm done.
9 CHIP CAMERON: Okay. Thanks, Aby, and I'm sure
10 you're going to get some questions on that.
11 Let's get Keith McConnell on first, before we go
12 back out to you in the audience, and Keith is going to talk
13 about something called defense-in-depth and multiple
14 barriers, I see that on the slides, and Keith has a Ph.D. in
15 geology.
16 He's a section leader for Bill Reamer in the
17 high-level waste branch, and his section is the performance
18 assessment issue, as explained by Tim in terms of what
19 performance assessment is.
20 Keith?
21 KEITH McCONNELL: Thanks, Chip.
22 As others have mentioned, the requirements for
23 multiple barriers generated a number of comments when we met
24 in Beatty in Las Vegas in March, and I'm here to help better
25 explain what we mean by multiple barriers and answer three

1 questions, basically, what we mean when we use the term
2 "multiple barriers"; two, why is it important to Yucca
3 Mountain and DOE's program at Yucca Mountain; and three, how
4 will the requirements for multiple barriers help protect
5 public health and safety for the residents of Amargosa
6 Valley and other citizens in Nevada, and hopefully, I'll
7 also touch on one of the concerns that Grant raised earlier
8 in the discussion period.
9 Now, what I'd like to do is put up the next
10 view-graph, which is not in your package, but it is designed
11 to help illustrate in a simple way what we mean by multiple
12 barriers, and hopefully you're familiar with the Russian
13 doll.
14 This is a cross-section through the Russian doll,
15 a toy, and if you're not familiar with it, Russian doll is a
16 wooden painted doll that is cut in the middle, and you open
17 it up, and there's a similar doll of smaller size inside,
18 and you open that doll up, and you find that there's another
19 doll of similar character of smaller size, and this is a
20 cross-section through such a doll, and basically, what we
21 tried to illustrate here is, with the radiation symbol on
22 the inside, is the possibility of spent nuclear fuel being
23 deposited in Yucca Mountain, and around that spend nuclear
24 fuel would be a number of barriers, including the waste
25 packaging and the geology that surrounds it, the rocks and

1 so on and so forth, so through this process basically
2 developed multiple lines of defense for releases of -- from
3 the repository if one barrier fails and you have other
4 barriers to compensate for that failure.
5 So, this is the concept of multiple barriers.
6 Multiple lines of defense are what we at the NRC use in
7 jargon terms, defense-in-depth, and I'll use the term
8 "defence-in-depth," but it means using the multiple-barrier
9 approach.
10 So, what is defense-in-depth in the context of NRC
11 regulations? Basically, it's a fundamental part of all of
12 our regulations. It's an aspect in dealing with nuclear
13 power plants, as well as all other licensees.
14 If you're familiar with a nuclear power plant, you
15 realize and you know that there's a concrete dome around the
16 reactor. That's part of the defense-in-depth philosophy for
17 a nuclear power plant.
18 What defense-in-depth and multiple barriers do is
19 that they compensate for malfunctions or accidents or
20 under-performance of a particular barrier.
21 If one barrier in the repository is breached, like
22 the waste package or perhaps, as the people mentioned, the
23 fault, through some of the geology out there, there should
24 be other barriers there that would compensate for those
25 failures or lack of performance.

1 The bottom line is public health and safety, in
2 NRC's view, is not going to rely on one barrier; it's going
3 to be a composite of the geology and the engineering of the
4 facility to ensure that the public health and safety is
5 protected.
6 What does it mean to DOE in terms of their getting
7 a license for a repository at Yucca Mountain?
8 DOE has to do a number of things with respect to
9 multiple barriers in coming forward to the NRC. They have
10 to identify the barriers, they have to identify their
11 capability to isolate waste, and they have to back up that
12 capability with sound science and engineering.
13 Basically, they have to show and rigorously
14 demonstrate that, through these multiple barriers, this
15 facility is safe and safe in terms of protecting the public
16 health and safety of the citizens of Nevada.
17 They have to show that it's safe and that there's
18 a role for both the geology and the engineering at the site.
19 You can't just rely on the geology to protect the public
20 health and safety, and you can't rely on just the
21 engineering. It has to be both. It has to be a system.
22 What do we do if there is a license application
23 submitted? There will be a thorough evaluation by the NRC
24 staff, and we do have a broad range of technical expertise
25 -- nuclear engineers, chemical engineers, geologists,

1 hydrologists, so on and so forth.

2 There will be a thorough evaluation by the staff,

3 but there also will be stakeholder input. As with all of

4 our other activities, including this rule-making, there are

5 ample opportunities for stakeholder input.

6 At the end, based on the demonstration that DOE

7 has made and our review and your input, we can either deny a

8 license application to DOE or grant them a license

9 application to construct.

10 It's all going to be based on the decision of

11 whether public health and safety is protected, in large

12 part, through this process of multiple barriers.

13 Now, the focus of some of the comments that we

14 received in March was why is NRC changing its approach to

15 multiple barriers?

16 Fifteen years ago, we developed a different

17 approach than what's being proposed now, and there are a

18 number of reasons why we did that, and perhaps one of the

19 largest is that there were recommendations from the National

20 Academy of Sciences and our own advisory committee on

21 nuclear waste that told us that our approach that we

22 developed 15 years ago was not an effective approach for

23 conceiving and demonstrating multiple barriers, and there

24 are a number of reasons why.

25 First of all, we didn't consider the interaction

1 between multiple barriers. In other words, if you have
2 water in your radiator, it's one thing if it's cold, but
3 it's another thing if the engine's running and it's heating
4 up.
5 Well, the same issue is applicable to Yucca
6 Mountain. If you have the waste in place there and it's
7 generating heat, what is the effect on the water in the
8 mountain?
9 That type of analysis wasn't considered in our
10 earlier requirements. We now believe we do address those
11 particular issues and that DOE will have to address them in
12 their license application.
13 It can't consider aspects of the site in
14 isolation; they have to consider them in the context of the
15 entire repository.
16 As Tim and others have mentioned, we've also made
17 significant progress in how we analyze the various aspects
18 of the site, how we model ground water flow, how we model
19 waste package corrosion, things like that. So, we think
20 we're a little bit smarter, after having 15 years of
21 experience of looking at Yucca Mountain and what DOE is
22 doing such that we can come up with a better and more
23 predictive approach.
24 And I guess that's basically it, but the bottom
25 line is that what we think we've done is better, it's going

1 to be more protective, but it always can be improved upon,
2 and we're here to hear your comments, and if you believe
3 it's not protective, then please let us know.
4 CHIP CAMERON: Okay. Thank you very much, Keith.
5 You just heard two presentations, and what I'd
6 like to do is to confine the questions to either the infants
7 and children issue or defense-in-depth. That doesn't mean
8 that we won't get your comments on other issues later on,
9 but I want to confine this portion to those two
10 presentations.
11 Are there questions?
12 SALLY DEDLIN: The first thing I have to say to
13 you and to Janet is our concept of Yucca Mountain is that it
14 is an analog.
15 Now, I don't know if people know what an analog
16 is, but that is a self-contained unit that cannot be opened.
17 The only analog that I know of that contains high-level
18 waste is in Canada. Is that right?
19 KEITH McCONNELL: I think so.
20 SALLY DEDLIN: Not only is Yucca Mountain an
21 analog, but can it remain open for 300 years and be viable
22 and protective?
23 Now, I've got to get back to Aby and his millirems
24 and so on. All of the publications on Yucca Mountain
25 compare the millirems of Denver, and Denver, because it's a

1 mile high, gets 365 a year. I serve on a committee at the
2 university. We get 420 as of two years ago, and we get 460
3 here in Amargosa.
4 Out of 10,000 children, 12 boys and 10 girls died.
5 This is unallowable. The figures given by DOE is one in a
6 million, and I can believe those numbers, because I have
7 read at least 20 inches of pages of these cancer numbers and
8 the potential.
9 Now, the only thing I know, having studied
10 radio-biology, is that nobody knows why anybody dies from
11 it. Nobody knows why one cell gets into a person and
12 metastasizes and you die of cancer, or as with Chernobyl,
13 where 375 people died of cancer, 110 children died of
14 thyroid cancer, that that cannot happen nationwide.
15 All the economic and socio-economic studies that
16 you made of transportation going by the lower-class, poorer
17 sections of cities indicate that this will be extremely
18 high, and who has the highest rate of cancer in the entire
19 nation in all 14 categories but the District of Columbia.
20 Nevada is highest is only two, and that's -- when I say
21 highest, in the top 10, and that was women's breast cancer
22 and women's lung cancer.
23 Now, one of the reasons for this is the reporting
24 of cancer and the reporting of all this, children's death
25 and so on, and as I told Tim and as I told Kevin at the last

1 meeting, you're talking to Nevada, you're talking to rural
2 Nevada.
3 We do not have coroners in 11 counties, and maybe
4 15 counties, 14 counties out of our 17.
5 Now, what does that mean? Ask our sheriffs over
6 here. What does everybody die of? Coronary heart failure.
7 Why is it that DOD is sending to every worker that worked at
8 the test site a form to come in and get a physical? Why
9 didn't they do it at Hanford? They had 2,500 people; 8,000
10 showed up. Everybody I know that worked at the test site
11 has died of cancer.
12 Now, these are serious questions. We're talking
13 about our children. We're talking about a disease that
14 nobody understands, and we're talking about very serious
15 numbers.
16 How many counties in Arizona and New Mexico and
17 other sparsely populated cities is this true?
18 So, to me, when they're giving me these numbers,
19 they're not only phony, but they're totally unrealistic as
20 to what we might experience.
21 CHIP CAMERON: Okay, Sally. You're covering a lot
22 of ground there.
23 SALLY DEDLIN: Well, I've covered the millirems
24 that they're talking about, and the 25 millirems, whatever
25 it is, is totally undetectable. We heard the word

1 "believable."

2 CHIP CAMERON: Okay, Aby. Can you distill an
3 answer for some of the concerns that Sally brought up,
4 either in terms of the data that she cited from the National
5 Cancer Institute study or her skepticism about comparisons
6 between natural background, whatever?

7 I mean you were listening. Why don't I just turn
8 it over to you.

9 ABY MOHSENI: The natural background, generally,
10 300 millirem per year, on the average -- we know that cancer
11 rate -- one-fifth of people, one-fifth, will die of cancer,
12 and this is just statistics in this country, 20 percent. To
13 distinguish who died from what cause, as you know, Sally, is
14 really the issue.

15 The standards are set, as you know -- based on
16 your background that you just described, you probably are as
17 aware, if not more, than anybody else that the contribution
18 to that cancer statistics from radiation standards that we
19 have when we apply them, especially when, indeed, the
20 exposures are a very small fraction of those standards, are
21 not distinguishable, they're so low.

22 They're non-existent. They're mathematically
23 calculable if you make certain assumptions in terms of you.
24 As you are nodding your head in confirmation, since it's not
25 being recorded, and indeed, I'm just confirming what you are

1 saying.

2 The fact that -- you know, the relevance of

3 whether or not one can collect enough statistics on why

4 people died in certain areas, specifically a locale that you

5 are referring to, versus the data that's collected more

6 broadly speaking from the general population, we have enough

7 information -- in fact, we know more about radiation than we

8 know about any other carcinogen.

9 Albeit the uncertainties are also known, we know

10 the uncertainties at very low levels of exposure, and you

11 are aware of that.

12 The standards that we have set, which are based on

13 international and national expert groups over the years,

14 from looking at statistics throughout ages, as you are

15 aware, are not the contributing factors to the kind of

16 statistics that you are referring to.

17 The statistics in Chernobyl -- very interesting.

18 As far as I know -- you said 110 children.

19 SALLY DEDLIN: And 375,000 adults.

20 ABY MOHSENI: Yes. Well, the statistics that I

21 have seen are different, very much different than what you

22 mentioned, much lower in terms of fatal cancers to children.

23 I think two was the number up to last month.

24 But more cancers have occurred. I'm talking about

25 fatal. Thyroid, generally, thyroid cancer, as you're aware,

1 has a lower fatality, but the incidence, yes, the incidence
2 of cancer did occur, caused through Chernobyl. That's
3 known, recognized.
4 But statistics that I am referring to are the
5 standards. The standards are, as you just confirmed in
6 nodding with me, that are not related to those statistics
7 that you were referring to.
8 CHIP CAMERON: Thanks, Sally.
9 Go ahead.
10 GRANT HALLE: I talked about the multiple
11 barriers. On the metal barrier, the canister itself, one of
12 the basic fundamentals of metallurgy is that you know about
13 the vessel limits.
14 If you violate that, it will give you a
15 catastrophic failure within three to six months. DOE -- I
16 just got a report back through searching their database. We
17 can't find it at all.
18 So, what does that tell you about the level of
19 competence of the metallurgists in the DOE? They never
20 heard of it, can't find it, basic fundamental safety
21 consideration.
22 When you get through with all your calculations,
23 all your tests, you take a look at the numbers, and I
24 stopped the Sandia project based on that. They were going
25 to irradiate the sewage with cesium chloride. The vessel

1 limits very clearly said, two to six months, catastrophic
2 failure, that thing rips open.
3 When they finally took a look at it, they stopped
4 the project, because otherwise they would have taken cesium
5 chloride out of that and put it in something appropriate.
6 That should be a requirement, that somebody at the NRC and
7 somebody in the DOE know how to make sure that nothing very
8 stupid is done.
9 These kinds of things are only known by people
10 that are turn-around experts. That's how you get to think
11 in terms of how you do things that have never been done
12 before, like Yucca Mountain, and without turn-around experts
13 in both the DOE and the NRC, you're flying completely blind.
14 The other barrier is in the hydrology model. The
15 one thing they know for sure about that model, the various
16 models that have been proposed, is they're all wrong and
17 that every time they run a new test, every time they look at
18 it a different way, they get completely different answers.
19 That's consistent with hydrology models at other places all
20 around the world. If that's supposed to be a barrier, it
21 needs to be nailed down, and nobody has ever nailed it down
22 yet.
23 CHIP CAMERON: Okay. Thank you, Grant.
24 I heard Nelson limits should be a requirement,
25 turn-around, and hydrology. Do you want to address any of

1 those?

2 KEITH McCONNELL: Well, I can address a few, but
3 first of all, let me clear up -- I think there are, Sally,
4 other natural analogs, in addition to Cigar Lake, some in
5 Australia and also in Africa, and if you want information,
6 we could probably get you some information on those sites,
7 if you don't already have it.

8 Second, with respect to the Nelson limits, I'm not
9 a materials engineer or a metallurgist, so I couldn't
10 respond intelligently to that, but what we will do is -- or
11 promise to you is we'll take that back to the materials
12 engineers that we have on staff, plus some of the people we
13 have in San Antonio who work for us, and we'll have an
14 answer back for you the next time we meet, or I can get back
15 to you through a letter, either way.

16 With respect to hydrologic models, we agree that
17 there's a lot of uncertainty in hydrologic models, as there
18 is in geologic models, and the whole data collection effort
19 that DOE is conducting is an attempt to narrow that
20 uncertainty to where we can have greater confidence, and I
21 think if you look at our reviews of DOE's program, we have a
22 healthy skepticism of all those areas that you mentioned,
23 and we're trying to make sure that the information provided
24 does give us confidence.

25 CHIP CAMERON: Okay. Thank you very much, Keith.

1 Let's get Rob Lewis up here right now and talk
2 about transportation, and thank you very much, Keith.
3 Thanks, Aby.
4 Okay. By way of introduction, Rob Lewis is with
5 the NRC's spent fuel projects office. He has a Master's in
6 nuclear engineering, and he's from Arizona, and I think he
7 feels glad to be back out west, so he can testify to that.
8 Rob is going to talk about transportation for us.
9 ROB LEWIS: Okay. Like Chip said, I'm in the
10 spent fuel project office, and we're a separate group from
11 every one of the previous speakers who are developing this
12 disposal rule.
13 What we do in the spent fuel project office is we
14 work to ensure safety of transportation of radioactive
15 materials and safety and storage of spent fuel when that
16 storage is not at the reactors.
17 I'll try not to use acronyms, but if I should
18 slip, which is very likely -- it's a little late for us east
19 coast guys -- if I say RAM, it means radioactive material.
20 If I say HAZMAT, it will mean hazardous material. DOT,
21 which I probably will use, is the Department of
22 Transportation, who we work closely with.
23 Tonight's meeting is about the new disposal
24 regulation, but at the last meetings in March, there was a
25 lot of questions about transportation. So, Mr. Reamer asked

1 me to come tonight to try to help answer some of those
2 questions.
3 But there's another reason I'm here in that I want
4 to explain tonight some of the opportunities that are going
5 to be coming up in the very near future for some more
6 interaction on transportation.
7 I know we definitely want to have a meeting in the
8 fall specific to assessing accidents and transportation of
9 spent fuel in Las Vegas, which if you sign up in the back of
10 the room, I'll make sure that you hear more about that.
11 So, tonight, there's a selfish reason for me to be
12 here, then. I'll get to meet some of you and hear some of
13 the issues you have.
14 The first slide I have shows the Department of
15 Transportation's role in regulating the safety of
16 radioactive material. DOT -- they really have the primary
17 role in transportation safety. NRC, who I work for, is in a
18 supportive role of the DOT.
19 DOT sets the rules for all hazardous materials
20 transportation. Radioactive materials are treated as a
21 subset of hazardous materials by DOT. The rules are very
22 similar. NRC has a separate rule which I'll get to in a
23 minute.
24 I want to quickly cover the last bullet, because
25 transportation is an international commerce issue. The DOT

1 and NRC both work together very closely with the
2 international organizations to set the standards for
3 transportation of all radioactive material, including spent
4 fuel.
5 On the next slide, I show what NRC's role is.
6 NRC's role in transportation is very narrow. When we talk
7 about transportation of spent fuel, we certify the casks
8 that are used to transport the fuel as accident-resistant,
9 and I'll explain what we mean by accident-resistant in a
10 minute.
11 We inspect the people that actually make the cask
12 to make sure that they're made to appropriate quality
13 standards, and we set rules to protect against theft and
14 sabotage, which has already been mentioned tonight, and we
15 inspect and enforce both DOT's rules and NRC's rules on NRC
16 licensees. We have a very aggressive inspection program.
17 Now, I want to be clear that NRC or DOT -- neither
18 one of us actually do the shipping of the material. That's
19 done by our licensees who are, in this case, shipping stuff
20 to Yucca Mountain, if it ever does happen, would be done by
21 DOE or the nuclear utility that is shipping the stuff here.
22 There's three areas of focus in transportation
23 safety rules.
24 We need to look at the hazards associated with
25 routine shipments, we need to look at the hazards associated

1 with accidents should they occur, and we need to look at the
2 hazards associated with the theft or sabotage, which I
3 already mentioned.
4 The routine transport of spent fuel does present a
5 hazard, because there is a small amount of radiation that
6 emanates through the walls of the casks that they're shipped
7 in, and that radiation can expose people along the transport
8 route.
9 Now, back in 1977, which I know was a long time
10 ago, but NRC sponsored a study that was done called
11 NUREG-0170, and I only mention that because I'm going to
12 talk about it at the very end as something we're looking at
13 again.
14 That study we used to evaluate the limits we have
15 in the rule for the amount of radiation that could emanate
16 through a cask or the amount of contamination that could be
17 present on a cask, and we use limits in the rule, in DOT's
18 rules, actually, that specify the level of safety that's
19 needed for routine transport.
20 Now, for accidents, there's a little bit of a
21 different consideration. Each cask that's used to transport
22 large quantities of radioactive materials -- spent fuel as
23 an example -- would require what we call an
24 accident-resistant cask.
25 What do we mean by that? It means four tests in

1 our rule. There's a 30-foot drop, there's a drop that's a
2 puncture onto a pin, there's a fire immersion test, and a
3 water immersion test.
4 All of those tests are done in sequence on each
5 cask design, and the casks not only must withstand those
6 tests, but they must contain the fuel or contain the
7 radioactive material after the test.
8 The natural question that comes up is how do those
9 tests compare to real-world accidents, and that's a very
10 legitimate question, and what we have done in that area in
11 the past, in 1987, we performed a study called the mobile
12 study.
13 There's a brochure in the back of the room, this
14 blue booklet, that describes the results of that study, and
15 the goal of that study was to compare the tests we have in
16 our rule, which are these hypothetical tests, to the forces
17 that a cask would experience if a cask was involved in an
18 accident in the real world, and the results of that study
19 showed that -- we estimate that about 99.4 percent of all
20 accidents that could occur would be protected against with
21 the standards that we have in our rule, the current
22 standards.
23 And finally, with respect to sabotage or theft, we
24 look at -- for each shipment, we look at the routes. We try
25 to detect threats. We review each route that's used.

1 During shipments, we rely on having an adequate
2 communication system with the vehicle to make sure it's not
3 in any danger.
4 We require armed escorts of spent fuel through
5 urban areas, and each vehicle that transports fuel would
6 have a disabling device on it.
7 We did a study in the past that estimated the
8 consequences of any release that could occur as a result of
9 sabotage.
10 The next slide is a slide that -- I wanted to put
11 up this to show the favorable experience we have and put the
12 shipment of radioactive materials into a little context, and
13 it's hard to get a good number on -- an estimate of the
14 number of shipments of hazardous material that occur. This
15 one, 770,000, comes from the two Sundays ago issue of the
16 Washington Times newspaper.
17 It says that, at any given time, there's about
18 770,000 shipments of hazardous material on the roads, and
19 everybody's seen the gasoline trucks with the bright red
20 diamond-shaped placards on them. That would be a hazardous
21 materials shipment.
22 Now, hazardous materials shipment have a very good
23 safety record. With the shipment of radioactive material --
24 and remember, radioactive material is a subset of hazardous
25 material -- that has an even better safety record. That's

1 not to say that -- we need to continue to focus on safety,
2 but it does have a very good safety record.
3 Every day, I estimate that there's about 10,000
4 radioactive shipments, and in the last 20 years or so, we
5 have shipped about 1,300 spent fuel shipments safely.
6 There's never been any accident that caused failure of a
7 spent fuel cask to date.
8 We do realize that the number of shipments of
9 spent fuel in the last 20 years, 1,300, is a lot smaller
10 than they're talking about for the repository.
11 There's also a lot of spent fuel transportation
12 experience internationally. Remember, I said in the
13 beginning that we do use the international standards for
14 transportation, and we do, in ways, account for the
15 experience that has happened internationally.
16 Now for the last slide. Earlier I mentioned
17 there's going to be some upcoming chances to have more
18 dialogue and written comments on transportation safety.
19 That's because we're sponsoring re-assessments of these
20 studies that I mentioned, the NUREG-0170 report, the 1977
21 report that looked at the safety of all transportation and
22 looked at the regulations and evaluated the limits that we
23 have for transportation in the regulations, and we're also
24 going to start looking at the mobile study, which is the
25 1987 study, again.

1 As the first step in looking at that mobile study
2 -- well, let me say first -- why are we re-looking at these?
3 We're re-opening these not only because they're 10
4 and 20 years old, which is a good enough reason in itself to
5 start looking at them again, but we know there's a lot of
6 changes that are going to be happening.
7 Whether it's Yucca Mountain or a central storage
8 facility somewhere, we know that there's a good chance that,
9 soon, there will be a lot more shipments of spent fuel, and
10 these shipments could be -- involve longer routes, and the
11 casks could be loaded with more fuel than was assumed in
12 these studies, the 1977 and 1987 study. We know that.
13 So, the question is whether the studies are still
14 valid. We think they are, but we're certainly going to look
15 at that. We're going to involve you intimately in that.
16 Also, the computer power that we have at our
17 hands, the sophistication of the computer models, everything
18 has gone up quite a bit since 1977, when we had to use the
19 super-computer at the national lab to do this 1977 study.
20 We could do it on our desk PC now in a half-hour.
21 So, for all these reasons, it's a good time to
22 look at it, and we're going to look at it. The first step
23 is to make sure -- we know that people have criticized these
24 studies in the past. We've read those criticisms. We're
25 not sitting in the ivory tower back in Washington with our

1 blinders on to all the criticisms that people have on these
2 studies.
3 The first step, like I said, is to have workshops.
4 We're going to sit down and identify the issues. The next
5 step would be to identify a plan to solve those issues.
6 That, like I said, is going to be starting up this fall.
7 So, that wraps up what I have to say.
8 I'd like to leave you with the thought that we do
9 have this existing system for transportation, and the record
10 shows that it is safe, and we rely a lot on that existing
11 record.
12 We're in a different place than the disposal
13 regulation. They're just starting to write a regulation.
14 We have a regulation.
15 The question we have to ask is whether the new
16 changes that might be occurring fit into that existing
17 regulation, and we're looking at this, we want to involve
18 people in looking at this and make sure that whatever we do
19 is publicly scrutinized, and we're looking forward to seeing
20 some of you again in the fall.
21 CHIP CAMERON: Thank you very much. Thank you,
22 Rob.
23 Before we go on to questions for Rob, Bill Reamer
24 just wants to address a couple of points to a related rule
25 that dealt with transportation of spent fuel, and then we'll

1 go to Rob for questions and then to Bill, if necessary, for
2 questions.
3 Bill?
4 BILL REAMER: Okay. Well, Chip, we are interested
5 in comments on transportation tonight.
6 As Chip mentioned, there is a related rule
7 involving nuclear power plants and the renewal of their
8 licenses, and this is not a meeting on that rule.
9 Nonetheless, if we have comments tonight that present
10 information that's relevant to that rule and it's new
11 information, we'll be sure that those comments are
12 considered.
13 In addition, let me point out that there is a lot
14 more activity coming on consideration of transportation
15 impacts. We expect the Department of Energy, in its
16 environmental impact statement, will be looking closely at
17 transportation impacts.
18 We expect that our comments will consider that
19 portion of the DOE EIS. We'll be interested in the comments
20 that you folks have, as well, on transportation, in
21 addition.
22 CHIP CAMERON: Okay. Thanks a lot, Bill.
23 Do you have a question on transportation?
24 WILLY FERGOSA: I was just sitting here wondering
25 about the shipments made already. Of course, we know that

1 most of the waste is in the east. So, you have a pretty
2 good record so far, although we know there have been leaks
3 in different places.
4 If Yucca Mountain is actually used, the number of
5 shipments would rise at an incredible rate compared to
6 what's already taken place. I know there have been
7 predictions about the number of accidents.
8 It's scary, because I mean just the computer
9 models and in real life, they're talking about just the
10 general public out there. If it was your family, even one
11 accident would be too many, if that was your family that was
12 involved. Wouldn't you think so?
13 You know, you're all people here, but we're
14 dealing with such -- the potential for such tragedy, it
15 scares me that they're moving stuff between Japan and France
16 and here and there.
17 I'm just trying to understand how this is just
18 being allowed at all. I don't know if you really can give
19 an answer to that, but it seems like, no matter what the
20 public says, things are going to be transported. Things are
21 going to happen whether we want them to or not.
22 So, I sit here almost feeling like this is a moot
23 thing to be going through this. I'm just hoping that this
24 process is actually going to help stop what many of us
25 really don't want to happen.

1 CHIP CAMERON: Rob, do you have some answers for
2 Willy?
3 ROB LEWIS: You make an absolutely correct and
4 good point.
5 You're right that most of the spent fuels are in
6 the east and the midwest. If it were transported to Yucca
7 Mountain or some other place in the west as a storage
8 facility, for example, the distances that it would be
9 transported would be greater than the studies that we have
10 in the past assumed.
11 You're right on how we analyze those. We have a
12 computer code that looks at the transport. Those codes,
13 like I said, are becoming more and more sophisticated. They
14 actually look at the accident rates on particular highways
15 now. Back in 1977, we didn't have that data. These are the
16 issues that we need to look at, and that's why we're
17 re-looking at these things, to determine if our current
18 rules are adequate.
19 As far as accidents, one accident that carries
20 spent fuel, we need to rely on the cask's ability to
21 withstand the accident.
22 That's where our -- that's where we focus our
23 attention, because that's where we believe was the best
24 strategy, because when we transport things on the highway or
25 on the railway, there will be accidents.

1 There's going to be a range of severity of those
2 accidents. Some accidents -- the great majority of
3 accidents won't be that severe, but as you get higher and
4 higher severities, the forces that the cask has to withstand
5 go up and up and up dramatically.
6 We have to -- we could build the casks to be
7 totally immune to any possible accident. That would be a
8 very expensive system.
9 We have to somehow look at what we have for the
10 ability of the cask, look at the accidents that are
11 reasonably expectable, that we could expect, without looking
12 at these very, very improbable kinds of things, because we
13 have to find a balance between the safety that the cask --
14 to optimize the safety that the cask can provide.
15 I hope that is somewhat of a response. It's
16 probably not the best response.
17 CHIP CAMERON: Okay. Well, thanks a lot.
18 I think we have another question on
19 transportation. Go ahead.
20 AUDIENCE MEMBER: I went driving in Las Vegas
21 today, and let me tell you, it was scary. So, it's
22 something to think about.
23 They have roads around here called the widow-maker
24 roads, you know, the road to nowhere and back, and it's
25 scary.

1 CHIP CAMERON: That's a good point, and maybe
2 either Rob or Bill can address how will specific
3 transportation routes, for example, driving on the roads,
4 this widow-maker or whatever, be considered in this whole
5 process in terms of transport hazard, either one of you or
6 both?
7 ROB LEWIS: I think what probably triggered that
8 thought was that I said we have the capability now to look
9 at the accident rates on specific roads, and we did not have
10 that capability when we wrote these books, but we do now.
11 There's always assumptions that we have in these
12 models.
13 We need to look at the assumptions and make sure
14 that they're reasonable and people can agree that, yes,
15 these are, in fact, reasonable assumptions, but the --
16 there's another place that those type of issues will be
17 addressed, and that will be the EIS, and a DOE one prepared
18 for Yucca Mountain will look at the specific routes going to
19 Yucca Mountain, I believe, as part of the impacts that
20 they're looking at.
21 That, of course, is not something that NRC would
22 be writing, but NRC will be looking at the specific routes
23 and the studies that I was speaking of.
24 CHIP CAMERON: Bill, anything to add to what Rob
25 said in terms of the EIS process?

1 BILL REAMER: I don't think so.

2 CHIP CAMERON: All right.

3 Lavonne, you haven't had a chance to speak yet,
4 and I believe you wanted to say something. Do you want to
5 come up to the mike, or would like for me to bring this
6 back?

7 LaVONNE SELBACH: We've been talking a lot about
8 transportation safety and container safety and everything,
9 and I wonder how secure it is for the people around us and
10 how secure we are in our particular valley against sabotage
11 or terrorists.

12 We could easily have a lot of sabotage or
13 terrorists or things like that. I worry about that in the
14 safety factor, too. I know that they will contain these
15 things, but there can be sabotage used against us. So, that
16 was really my concern.

17 Now, when we start thinking in ways of how secure
18 is the Yucca Mountain site itself, I think of the terrorists
19 and sabotage.

20 Also, I have some notes here that was given to me,
21 and I'd like to read a paragraph of it into this record as a
22 statement, but we would like to make sure that the standard
23 for Yucca Mountain are set against the locally-established
24 background radiation levels and not the national level,
25 which is higher, and also, we would like a written response

1 to that.

2 I have a note in the back in regards to that, and

3 you have a copy of it, too.

4 Thank you very much.

5 CHIP CAMERON: Okay. Thank you, Lavonne.

6 Does anybody from the NRC staff have anything to

7 offer on the sabotage issue in terms of the NRC standards?

8 Tim, is there anything that you can say about that

9 at this point?

10 TIM McCARTIN: The regulations require a security

11 system for the repository to prevent unauthorized access to

12 the site.

13 CHIP CAMERON: Okay. Thank you.

14 Lavonne, if you have something further on this,

15 perhaps you can talk to Tim later.

16 Victoria McGee, do you want to say something?

17 VICTORIA McGEE: My name is Victoria McGee. I

18 live in Amargosa Valley. I have many questions. Every

19 place I go, they don't want my questions. It belongs to

20 somebody else. It's kind of like it's not my job.

21 One thing, as a resident in this critical hazard

22 area of Yucca Mountain, that concerns me, I'm concerned

23 about my civil rights. I'm concerned about my civil rights

24 because we are referred to as individuals with unusual

25 habits and sensitivities.

1 What does that mean? Does it mean crazy? Is
2 everybody in Amargosa Valley crazy, or most of them?
3 Unusual habits, sensitivities? Who decides this?
4 CHIP CAMERON: Victoria, could you just tell us
5 what you're reading from, where that was stated?
6 VICTORIA McGEE: Page 8646.
7 CHIP CAMERON: Of?
8 VICTORIA McGEE: Of your book.
9 CHIP CAMERON: Of the NRC rule. All right.
10 VICTORIA McGEE: I understand that you recommend
11 that the Department of Energy make these determinations on
12 who's crazy and who isn't. That's what it says here.
13 Assumed characteristics. That's a good one.
14 What are the credentials to make these
15 observations on people's personal habits, sensitivities?
16 What does that mean?
17 CHIP CAMERON: Let's try to find out, Victoria.
18 Janet?
19 JANET KOTRA: First of all, I'm very familiar with
20 the passage that you cite from the proposed rule, and what
21 we're trying to address is recommendations of the National
22 Academy of Sciences.
23 I think it's an excellent question in the sense of
24 what does this mean, and let me assure you, first of all, it
25 has nothing to do with one's mental state, and that's not

1 what the National Academy was telling the Environmental
2 Protection Agency or the Nuclear Regulatory Commission, and
3 furthermore, it's not saying anything at all about the
4 people who live in Amargosa Valley now, because what the
5 context of that recommendation was -- we're talking about
6 trying to protect not just the people who are here -- and
7 that means all of you, but it means very far into the
8 future, and I think we can all agree that there's a lot of
9 speculation, that we could all speculate about what's going
10 to happen over the next 10,000 years, and how do you make a
11 rational decision about what those people, even 400 years
12 from now, are going to be like, let alone 10,000 years?
13 So, the question is, you could have unlimited
14 speculation.
15 You could, you know, postulate that there would be
16 new food sources that don't exist now. You could postulate
17 that there would be different digestive processes, that the
18 human being would evolve into something different than what
19 we know about people today, and what we're trying to do,
20 what the National Academy is trying to tell the
21 Environmental Protection Agency, don't go there.
22 Talk about how you would protect people in the
23 future that are like they are today.
24 VICTORIA McGEE: My problem is this is now.
25 JANET KOTRA: Right. Exactly.

1 VICTORIA McGEE: I live here now.

2 JANET KOTRA: Exactly.

3 VICTORIA McGEE: I'm exposed now to whatever goes
4 in Yucca Mountain or down the highway.

5 JANET KOTRA: That's right. That's true. You are
6 exposed to what goes on. There's nothing going on at Yucca
7 Mountain that is exposing you to radiation. That's why NRC
8 is here.

9 We are developing criteria to make a judgement
10 about whether material will go to Yucca Mountain, and the
11 question is we want to ensure not just the protection of
12 everyone who lives here now but over that 10,000-year period
13 that we're concerned about and how widely do we make
14 assumptions about people who live in the future?

15 The first priority is protecting people that are
16 here now, and I think we have reasonably good confidence
17 that, based upon engineering judgement, based upon what we
18 know now about how materials behave, we have be reasonably
19 sure about what -- our ability to judge DOE's proposal.

20 The trouble is we're talking about a very
21 long-term enterprise, and the quotes that you raise talk
22 about how you bound those assumptions about who's going to
23 live in the future, and is there something different about
24 them that we need to take into account other than what we
25 know about how you live now and what you eat and how you

1 drill for water.

2 That's the data that we know about. We can go out

3 and measure that now, and so, what the National Academy of

4 Sciences is saying is make reasonable assumptions that

5 people in the future will be like people who live today,

6 because that's what we know.

7 VICTORIA McGEE: Well, I'm not too sure that, when

8 DOE comes out here to make these evaluations, that they

9 won't meet with the first 100 people that agree with them

10 and put the rest of us back.

11 JANET KOTRA: Well, we won't find that acceptable.

12 VICTORIA McGEE: But will you know about it?

13 JANET KOTRA: Yes, because that is one of the very

14 most important things about the demonstration that they make

15 for us, is how they have characterized what this term, the

16 critical group, which is something that the National Academy

17 recommended that we use -- we want to know how they define

18 that critical group, whether their assumptions are

19 reasonable, whether they are based upon real data about

20 where people live and how they live and what they eat and

21 how they farm, and we want to see that data, and if that

22 data doesn't support a reasonable assertion on their part,

23 then we will say either, one, go get the data that you need

24 to make your case or we'll say no. It's that simple.

25 VICTORIA McGEE: It still might seem that simple

1 to you, but to the average individual, nobody is addressing
2 our concerns. Nobody speaks to us in language that we could
3 understand that pertains to our concerns. You're career
4 people. You talk to each other.
5 You won't talk to us. You don't tell us things we
6 can relate to. You have your own language. That's a good
7 example.
8 CHIP CAMERON: Hopefully -- Victoria, thank you
9 for bringing this point up, and hopefully tonight is the
10 beginning of trying to talk to you and to explain things
11 more clearly, and hopefully, Janet's explanation made that a
12 little bit clearer.
13 JANET KOTRA: And if there are other things in
14 what we put out that don't speak in plain English, that need
15 clarification, that need to be more clear, so that people
16 who are most important to us, the people we're trying to
17 protect, can understand that we are trying to protect and do
18 our job, we need to know about it. That's why we're here.
19 CHIP CAMERON: Thank you, Victoria.
20 Is there anybody who hasn't had an opportunity to
21 speak tonight that wants to say something?
22 AL MURPHY: I'm Al Murphy. I'm the regulatory
23 licensing advisor to Nye County, and I sense that this is
24 winding down. I haven't spoken tonight for one simple
25 reason.

1 We, the Nye County Government, had ample
2 opportunity in March, during the public meetings that were
3 conducted by the NRC in both Las Vegas and up in Beatty, on
4 all of these issues that we're heard tonight, in particular
5 on the proposed rules.
6 We have remained silent tonight out of deference
7 to members of the public, and we wanted to make sure that
8 everybody here in the room got an adequate change to express
9 their views, but I do want to thank the NRC for listening to
10 the public in March, especially the public's concern with
11 the abbreviated, at that time, comment period on the
12 proposed rule.
13 We want to thank the NRC for extending that time
14 period, for re-opening it to public comment, and for coming
15 back out here to conduct this meeting tonight and further
16 meetings in Las Vegas, and we certainly appreciate that.
17 We hope everybody from both Nye County and other
18 counties and our California folks here tonight have had an
19 adequate change to express themselves, but we really do
20 appreciate the NRC's coming for the second time and
21 extending the public comment period.
22 Thank you.
23 CHIP CAMERON: Thank you, Al.
24 Anybody else who hasn't spoken tonight?
25 ENGLEBRECHT VON TIESENHAUSEN: I had a couple of

1 questions for Rob.

2 Is the NRC going to have any influence on what

3 routing will be used for transportation? That's question

4 one.

5 And question two is you made the statement that

6 any shipping that would be done would be done by either DOE

7 or the reactors. Does that mean that third parties are

8 excluded?

9 ROB LEWIS: I'm not sure I understand the second

10 part about third parties.

11 ENGLEBRECHT VON TIESENHAUSEN: In other words, DOE

12 has been talking about privatization of the shipping effort.

13 Is that something that the NRC would not condone?

14 ROB LEWIS: Our regulations would permit that, but

15 in general, our licensees -- I was just making the point

16 that we don't actually do the shipping, it's our licensees

17 that do the shipping.

18 Someone, a contractor for one of our licensees,

19 can ship something for a licensee, but we hold the licensee

20 accountable for the safety of that shipment.

21 The first part of the question -- could you

22 refresh me?

23 ENGLEBRECHT VON TIESENHAUSEN: The question was

24 you were talking about analysis of accidents.

25 ROB LEWIS: Routing, yes.

1 ENGLEBRECHT VON TIESENHAUSEN: Does the NRC have
2 any say?
3 ROB LEWIS: DOT will require the use of the
4 interstate system or beltways around urban areas, as they
5 are available.
6 Now, the reason DOT does that is because DOT has a
7 lot of accident data that show that the interstate system is
8 far safer than rural roads.
9 So, they want to maximize the safety of spent fuel
10 shipments, and they require the use of interstate, actually
11 for all hazardous material, not only for -- for all large
12 quantities of hazardous material, not only for spent fuel,
13 they do that.
14 Back in Washington, two weeks ago, we had a spill
15 of gun powder on our beltway which shut down the beltway and
16 really became a traffic nightmare for the rush hour commute
17 home.
18 That stirred up a lot of talk in Congress about
19 whether or not Congress needs to do something about DOT's
20 routing requirements, but you know, that's something that is
21 a long process that's going to be drawn out to see what they
22 would do.
23 The answer to your question is NRC does not set
24 the routing requirements; they're set by DOT. What NRC does
25 do, though, is we review the routes that are used for

1 assessing threats and sabotage. We actually drive down the
2 routes and look at potential rest stops that could be used
3 to make sure that they're selected properly and issues like
4 that.
5 I hope that somewhat answers the question.
6 ENGLEBRECHT VON TIESENHAUSEN: Well, yes, but it
7 doesn't address the issue that, if you find that certain
8 route segments have a large number of accidents, DOE could
9 still pick that route.
10 ROB LEWIS: That's an interesting point. I'm not
11 sure if I know the answer to that, but I could get back to
12 you on that.
13 CHIP CAMERON: Okay. Thank you, Rob.
14 Al Murphy was right, we are winding down, and
15 there were two people who had their hands up here that I'm
16 going to go to for just a short comment, I mean very short
17 question, and before we do that, if you have this evaluation
18 and comment sheet, if you have that, please hand that in at
19 the end, and if you need a copy of this proposed rule that
20 we've been talking about, we have copies of that.
21 Let's go to Ralph very quickly, and then we'll go
22 to you very quickly, and then we're done.
23 RALPH McCRACKEN: Okay. Thank you, Mr.
24 Facilitator. I appreciate the opportunity to speak to you,
25 but I didn't appreciate the point that, if a person spoke to

1 one presentation, you couldn't speak to another
2 presentation.
3 That being said, I did find that the
4 defense-in-depth comment was an interesting concept and also
5 that you present yourselves as being impartial defenders of
6 our safety.
7 Your presence here is evidence of your proactive
8 stance rather than being caught up in the reactive,
9 knee-jerk type position, and as regulators, you can specify
10 what kind of rules and regs apply to maximum load of 70,000
11 tons that's the current law.
12 On June 10th, Russ Guyer, the gentleman who is in
13 charge of the Yucca Mountain project, projected that there
14 could be as many as 105,000 tons that would be looking for a
15 home at an expanded Yucca Mountain.
16 Right now, you guys are in a position to make
17 scoping rules for expanded critical studies that are not
18 abbreviated to thwart the expansion. I hope you're
19 following what I'm saying here.
20 What I'm concerned about is that there could be a
21 push to expand the operation through expansion-type
22 regulation rather than a re-characterization set of
23 regulations, and this announcement made by Russ Guyer was
24 made at a meeting with Nevada State Commission on Nuclear
25 Projects.

1 It's not just a hearsay-type thing, and it's well
2 reported.
3 Is there any kind of mechanism that you can
4 initiate that would include this in what you're working on
5 now, you know, to preclude, okay, we've got this, let's
6 expand it, without doing a really serious re-scoping of the
7 mountain?
8 BILL REAMER: Well, under the present law, it
9 can't be done. The present law says -- limits the capacity.
10 RALPH McCRACKEN: That's the law. Okay.
11 BILL REAMER: Congress could change that law, but
12 Congress, in changing it, would not be saying it is safe to
13 have more. That would fall to us to make that
14 determination. The burden would be on the Department of
15 Energy to demonstrate that it's safe.
16 If they present the case that's a convincing case,
17 if the right conclusion, based on all the evidence, is that
18 it's safe, then that would be the right conclusion to reach,
19 but none of that has transpired. We're speculating at this
20 point.
21 JANET KOTRA: I think it's also useful to add that
22 the 70,000 number, as far as I'm aware in the Nuclear Waste
23 Policy Act and amendments, was not a judgement about what
24 can be safely put in Yucca Mountain. That is an upper limit
25 based upon a number of considerations, but if a license

1 application came forward and the demonstration was that some
2 considerably smaller amount of fuel could be safety emplaced
3 at Yucca Mountain, then we would issue a license that would
4 limit -- that would condition -- Tim talked about
5 conditioning a license.
6 So, that judgement about what can safely be put in
7 Yucca Mountain has not been taken yet.
8 So, if the Congress were to propose another
9 number, most likely also not based upon a safety
10 consideration, we would still -- it would still be subject
11 to our evaluation, and I would add that I strongly suspect
12 that we would be consulted by the Congress to comment on
13 that expansion from a safety perspective.
14 CHIP CAMERON: Okay.
15 RALPH McCRACKEN: This is enough of an issue to
16 shove people who were, okay, just do it right into the camp
17 of stop it, don't do it at all.
18 CHIP CAMERON: Good point. Thank you.
19 Sally, this is going to be real quick.
20 SALLY DEDLIN: In the assessment report, volume 2,
21 page 54, there will be not one but two repositories. This
22 has come up three times. I have it in writing. Also, there
23 are 126,000 metric tons plus the 14,000 metric tons that is
24 defense waste.
25 CHIP CAMERON: Thank you, Sally.

1 SALLY DEDLIN: I will submit this to you.

2 CHIP CAMERON: Thank you, Sally.

3 Grant?

4 GRANT HALLE: One requirement that the NRC should

5 place on DOE is that they not be allowed to transport the

6 waste at all. There's commercial technology for heat

7 transfer.

8 There should be a requirement that those reports

9 need to be a part of this proceeding. I think it's

10 critically important.

11 I think, obviously, when you see them, you'll see

12 that we don't need Yucca Mountain.

13 CHIP CAMERON: Okay. Thanks, Grant, and thank all

14 of you for coming tonight. Thank you for your comments, and

15 the staff will be here if you need to talk to them.

16 Thank you.

17 [Whereupon, at 10:30 p.m., the meeting was

18 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

CASE NUMBER:

PLACE OF PROCEEDING: Amargosa Valley, 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

Carey Leffler
Official Reporter
Ann Riley & Associates, Ltd.