

# Official Transcript of Proceedings

## NUCLEAR REGULATORY COMMISSION

Title: Public Meeting on Draft Potential Changes to  
Commercial LLW Regulation: 10 CFR Part 61

Docket Number: (n/a)

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
  
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PUBLIC MEETING ON DRAFT  
  
POTENTIAL CHANGES TO COMMERCIAL  
  
LLW REGULATION: 10 CFR PART 61

+ + + + +  
  
Tuesday, May 15, 2012

+ + + + +  
  
Berkeley Room  
  
Cooper Hotel Conference Center  
  
12230 Preston Rd.  
  
Dallas, Texas

The above-entitled hearing was conducted at  
8:30 a.m.

BEFORE: BRET LESLIE, Facilitator

A G E N D A

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P R O C E E D I N G S

1  
2 DR. LESLIE: Let's go ahead and get started so  
3 the phone operator could bridge people in.

4 THE OPERATOR: Certainly. I'll transfer you  
5 now. There will be music until I begin with a brief  
6 introduction.

7 (Pause.)

8 THE OPERATOR: Welcome and thank you for  
9 standing by. At this time all participants are in a  
10 listen-only mode. During the question-and-answer sessions,  
11 if you'd like to ask a question, please press \*1.

12 Today's conference is being recorded, and if you  
13 have any objections, you may disconnect at this time, and I  
14 would now like to turn the meeting over to Dr. Bret Leslie.

15 Sir, you may begin.

16 DR. LESLIE: Thank you very much, and I'd like  
17 to welcome everyone here, and hopefully we have more people  
18 calling in remotely. We're working a little bit on the sound  
19 right now so we don't have as much feedback, so I'm just  
20 wasting time while he fixes the sound.

21 Anyway, I am Bret Leslie; I am going to be the  
22 facilitator for this meeting today on -- public meeting to  
23 discuss 10 CFR Part 61, low-level radioactive waste  
24 regulatory management issues.

25 For some people there are some new faces; for

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1 others there I've seen before. Before we get started, I want  
2 to go through some logistics, some important ones.

3 We do have an agenda, and I'll walk through that  
4 a little bit more, and people should have been able to pick  
5 up agendas, copies of the slides, a meeting feedback form,  
6 little yellow comment cards if you think you're going to  
7 comment.

8 And the reason why those comment cards are  
9 important is because the meeting is being transcribed today  
10 by Penny, and I want to make sure we get a clean record, because  
11 the staff is using the information you're providing today to  
12 help them develop the regulatory basis for proposed changes  
13 to Part 61.

14 This meeting -- for those of you on the phone,  
15 we're here in Dallas. We have people on a telephone bridge  
16 line. We also have a webinar. And so as we do comments today,  
17 I'm going to approach and deal with -- and take questions here  
18 first; then I'll go to the phone lines, and the operator will  
19 assist me. And then we'll also be checking the webinar.

20 Couple other things: When we do break for  
21 lunch -- and we'll check in on the agenda when we do break for  
22 lunch, but there is opportunity to have lunch right here.  
23 There's a \$12 lunch if you want to buy it here; you can go just  
24 up the stairs and there's a nice menu here that we have.

25 Couple other things: We will probably take a

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1 break in the morning before lunch, just to let everyone  
2 refresh. We're going to have many opportunities for people  
3 to ask questions. We're going to have questions during the  
4 presentations, and it will be very obvious; there will be  
5 certain points where we're going to break and then we'll have  
6 questions. And then we'll have also in the afternoon a period  
7 for more additional questions and public feedback.

8 So one of the things I want to do is go through  
9 some ground rules and make sure everyone's on board with  
10 those. Because the meeting is being transcribed, I would  
11 suggest people mute their cell phones right now. I know I have  
12 an alarm that goes off at 10:30 every morning; I made sure it  
13 was muted this morning.

14 Again, because we're on the record, no side  
15 conversations, and speak one at a time. Also, because we're  
16 trying to get this on the record for Penny, please identify  
17 yourself each time you speak; that will help her get a clean  
18 record. And if you could provide your name and your  
19 affiliation; if you have no affiliation, just say "self" or  
20 "I'm representing myself."

21 One of the things that has been a hallmark of  
22 the discussions that we've had so far is people respect each  
23 other, so you might hear things that you might strongly  
24 disagree, but just think: You want to have the same  
25 opportunity to be heard as the other person who may be

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1 presenting a differing view.

2 And I don't need the last ones because we've got  
3 an operator, so the phones are muted so we won't have feedback.

4 A couple of other things: The exits out of the  
5 building are straight out and to the left, and the restrooms  
6 are down the hall and to the right; the women's right outside  
7 and the men's further down the hall to the right.

8 One of the things that Drew -- in fact, let me  
9 do that right now. I'm going to go down the line to -- if the  
10 people at the front table could introduce themselves really  
11 quickly and say who you are and what your role is here today,  
12 and then I'll get ready to turn it over to Drew.

13 Dave, you want to start?

14 DR. ESH: Sure. This is David Esh. I'm a  
15 senior systems performance analyst in the Division of Waste  
16 Management and Environmental Protection. I work on low-level  
17 waste, complex decommissioning sites, waste incidental to  
18 reprocessing, which is kind of a consultative process that we  
19 do with the Department of Energy [DOE].

20 And I'll be one of the authors of the technical  
21 basis document for this rulemaking, and one of the members of  
22 the working group to draft the regulatory language.

23 MR. SUBER: My name is Gregory Suber. I am the  
24 chief of the Low Level Waste Branch, and most of my duties are  
25 associated with the activities around Part 61.

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1 MR. PERSINKO: My name is Drew Persinko, and I'm  
2 the deputy director in the Division of Waste Management and  
3 Environmental Protection at NRC. The low-level waste  
4 activities are all being done in my directorate.

5 DR. LESLIE: Okay. A couple more things, and  
6 although I work for the NRC, I don't work for these guys.  
7 Well, I don't work directly for these guys, but I actually  
8 support them.

9 And one of the things that they're struggling  
10 with as they look back at the transcript from the last meeting  
11 is there were a lot of -- people had strong opinions, but what  
12 the staff needs is the technical basis. Why is this a good  
13 position to go forth? And so I may be like a two-year-old  
14 today. If I hear your comment and I don't hear a why, I may  
15 paraphrase and say ... "Well, Lisa, what did you mean by that?  
16 What kind of information can you give to support that  
17 position?"

18 I'm only picking in Lisa because I've known her  
19 for quite some time, and she's fine with me picking on her.

20 So that, again -- and I'm going to actually rely  
21 on -- we have people back in D.C. also listening in on the  
22 phone call, so in terms of the webinar, after each session I'm  
23 going to ask someone like Chris Grossman or Mike Lee to say,  
24 Well, did you hear the whys?

25 So before we really progress forward, I'm going

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1 to actually push it back onto the staff to say, Well, that was  
2 a good discussion, but I need some information here.

3 So it's definitely a two-way discussion that  
4 we'll have one more final opportunity in D.C. to talk about  
5 this, but this time, again, I'm going to really try to focus  
6 on the whys for the positions.

7 And I guess with that, I'll turn it over to Drew  
8 Persinko.

9 MR. PERSINKO: Okay. Thanks, Bret.

10 Well, you already know who I am, so let's move  
11 on the next slide. My name is Drew Persinko. I want to  
12 welcome everybody here today to our public meeting on the  
13 revision of Part 61.

14 Today we're going to be seeking feedback from  
15 you, the public, on three different areas. We're going to ask  
16 for feedback on the recent Commission direction that was in  
17 the SRM [Staff Requirements Memorandum] in January of this  
18 year. We'll also going to seek input you may have on emerging  
19 and policy technical issues, which Mr. Suber is going to talk.

20 And also we are also going to seek any input you  
21 have on the comprehensive Part 61 revision that was described  
22 in SECY Paper 10-0165, which is the comprehensive Part 61  
23 revision that's down the road a ways, but we want to take  
24 advantage of this meeting for any input you may have on that.

25 Today's meeting is the second of three public

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1 meetings we plan to have on these matters. What you see -- the  
2 four speakers for today's presentations: I will speak on the  
3 overview and background. Dave Esh will talk about more of the  
4 details of the Part 61 rulemaking, and Greg Suber will talk  
5 about the emerging issues, as well as the comprehensive Part  
6 61 revision.

7 So this is an overview of what I intend to talk  
8 about this morning in my beginning presentation. I'm going  
9 to talk about -- give you an overall low-level waste  
10 perspective, talk about the direction we received from the  
11 Commission, what we and the staff are doing, a timeline, and  
12 then lead into Dave's talk with some low-level waste  
13 background.

14 So from an overall perspective of low-level  
15 waste activities in my directorate, here's a timeline of the  
16 activities: What you see is at the very top, the top bar you  
17 see is the Volume Reduction Policy Statement. We have been  
18 working on that for a while. We recently issued that as a  
19 final document in April.

20 The second bar down is the Concentrating  
21 Averaging Branch Technical Position. That's -- it's very,  
22 very close to being issued for a draft -- as a draft for  
23 comment. We expect to send it to publishing by the end of May,  
24 and then it will be available for you to view in early June  
25 sometime.

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1           The third line down is our Site Specific  
2 Analysis rulemaking, which is a large part of our discussion  
3 this morning.

4           And then the bottom bar you see is the  
5 SECY-10-0165 Part 61 comprehensive revision. And so these  
6 are how the various activities fit together in a timeline.

7           As far as stakeholder input, starting back in  
8 the beginning of 2011, you can see there's a number of  
9 documents we've published. There were a number of meetings  
10 we've held. The items you see with an asterisk on it are the  
11 opportunities for public input.

12           And so since the beginning of 2011, there have  
13 been quite a few documents published, and there have been a  
14 number of opportunities for the public to provide input on the  
15 various documents that we are working on.

16           So let's talk about the direction we've received  
17 from the Commission. The initial Commission direction we  
18 received, we received this in SECY -- in an SRM back in March  
19 of 2009.

20           This -- the direction we received was in  
21 response to a SECY we had prepared, the staff had prepared,  
22 SECY-08-0147, in which we talked about the near-surface  
23 disposal of large quantities of depleted uranium [DU].

24           The SRM that came back to our SECY gave us the  
25 direction you see on this slide here. It told us to develop

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1 a site-specific analysis to demonstrate compliance with  
2 performance objectives and also to prepare a technical  
3 requirements document to go along with the proposed rule and  
4 also develop a guidance document; a third bullet, develop a  
5 guidance document to go with the proposed rule.

6 So there was the requirement to prepare a  
7 rulemaking; there was a requirement to develop technical  
8 requirements to support the rulemaking, and also to develop  
9 guidance. And that began what we refer to as the  
10 site-specific analysis rulemaking.

11 So most recently, in January of this year,  
12 January 19, the Commission provided another Staff  
13 Requirements Memorandum to us, an SRM, in which it talked  
14 about the following four items that you see here: Had process  
15 elements; it had policy elements; it included a timeline, and  
16 talked about public outreach.

17 With respect to the policy matters, it talked  
18 about -- it directed us to expand the current site-specific  
19 analysis rulemaking. It said that the Commission reserves  
20 judgment on the final rule text.

21 It told the staff that if we come across any  
22 immediate health and safety concerns, we should immediately  
23 notify the staff -- notify the Commission, rather, and that  
24 we should balance information we receive from various sources  
25 concerning the period of performance.

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1           It also told us to continue to engage  
2 stakeholders regarding the comprehensive Part 61 rulemaking  
3 that was described in SECY-10-0165.

4           So it told us to keep going forward on the  
5 long-term SECY-10-0165 rulemaking, but it did tell us to not  
6 make a recommendation to the Commission on the long-term  
7 revision until we've completed the current rulemaking, the  
8 site-specific analysis rulemaking that we're currently  
9 engaged in.

10           And the other three bullets you see there, the  
11 policy, the timeline, the public outreach I'll cover in slides  
12 here in just a minute.

13           So the direction -- the policy direction we  
14 received in that SRM, the January SRM, contained four bullets.  
15 It directed us to incorporate flexibility, to use the current  
16 ICRP [International Commission on Radiation Protection] dose  
17 methodologies. It supported the two-tier period of  
18 performance that we have in our site-specific analysis  
19 rulemaking, but it told us to develop what -- a reasonably  
20 foreseeable compliance period and then a longer period of  
21 performance, which is not a set a priori.

22           It also told us -- directed the staff to  
23 incorporate the flexibility, to incorporate -- to establish  
24 the site-specific waste acceptance criteria in the rule, and  
25 it also directed us to balance the federal and state alignment

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1 and flexibility.

2 As I said, another direction we received from  
3 the Commission in SECY-10-0165 had to do with the longer-term  
4 comprehensive risk-informed revision of Part 61, which we  
5 prepared in response to the direction we received from the  
6 Commission.

7 And in that SECY we proposed five alternatives  
8 as possibilities for a longer-term revision of the Part -- a  
9 longer-term, more comprehensive revision of the Part 61. And  
10 you can see the five alternatives, the five options we put in  
11 that paper. I don't need to go through them, but those were  
12 the five options that were in our SECY paper, SECY-10-0165.

13 What you see here is we tried to show the  
14 relationship of the various directions we've received from  
15 the Commission. What you see on the left are -- all four boxes  
16 here are basically directions we've received from the  
17 Commission.

18 On the upper left is the SRM to SECY-08-0147,  
19 which we received back in '08, and it directed us to budget  
20 for risk-informing the waste classification tables using the  
21 latest ICRP methodology, and to classify depleted uranium.

22 And that was -- we weren't told to do that; we  
23 were told to budget for that in a future budget. We were  
24 directed to begin the site-specific analysis rulemaking, so  
25 that came out of that SRM-SECY-08-0147.

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1           The middle SRM on the left-hand side is the  
2           current SRM that we received in January of this year, and below  
3           that you can see the direction we received that I just  
4           described.

5           And then on the bottom on the left-hand side is  
6           an SRM we received as a result of a Commission meeting. In  
7           that Commission meeting we were directed to provide an  
8           approach to initiating a risk-informed, performance-based  
9           comprehensive revision of Part 61.

10          And what the slide is trying to show is the  
11          interrelationship between the various directions. So as a  
12          result of the direction at the Blending Commission meeting to  
13          develop a comprehensive revision, we developed SECY-10-0165,  
14          which you see on the right-hand side here.

15          I said earlier that there were various options  
16          included underneath -- included within SECY-10-0165, but you  
17          can see two of those options really were coming from elsewhere  
18          in previous SRMs.

19          In other words, the first option really came  
20          from SRM-SECY-08-0147. The third option, which was included  
21          in SECY-10-0165 was to incorporate a waste acceptance  
22          criteria. Well, we were directed now to incorporate that as  
23          a result of the January SRM.

24          So what we're trying to show is how -- the  
25          relationship between the various directions that we've

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1 received from the Commission and how they fit together.

2 With respect to emerging issues, during the  
3 course of the meetings we've had over the last several years,  
4 in addition to talking about Part 61, we've received a number  
5 of recommendations in the public meetings.

6 Some related to Part 61, some did not. And I've  
7 listed here some of the ones that we've received over the last  
8 few years. These are a sample of the questions and comments  
9 we've received. I'm not going to go over them now.

10 Mr. Greg Suber will be discussing the emerging  
11 issues later in the presentation in more detail, but I just  
12 wanted to set the stage right now that in addition to the  
13 current direction that we want to talk about today, we also  
14 want to hear any comments, any input you have concerning the  
15 emerging issues. And we did hear some at the March 2 meeting  
16 that we had in Phoenix, the first public meeting we had on Part  
17 61.

18 So let me get into the staff's approach a bit  
19 here. So what we're trying to do -- what we're doing is we  
20 have a number of meetings completed and planned yet.

21 As I said, the first public meeting we held in  
22 Phoenix back in March, last March, March 2, 2012. Since that  
23 time -- and let me add that we received -- we had a lot of  
24 turnout at that meeting; we received a lot of good input at  
25 that meeting. We had a number of recommendations to include

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1 certain items that went, say -- that were included in Part 61  
2 but were not included in the site-specific analysis  
3 rulemaking, which we will talk about today as well.

4 But since the March 2 meeting we've reached out  
5 to the Low-Level Waste Forum and largely the Agreement States  
6 at that Forum; we spoke at the Forum and received feedback from  
7 the Forum.

8 We've also met with the Organization of  
9 Agreement States during the CRCPD [Conference of Radiation  
10 Control Program Directors] meeting that was recently held in  
11 Orlando, Florida. It was about a week ago.

12 We talked to the Agreement States at that  
13 meeting as well, and currently we're in our second of the three  
14 public meetings we intend to have on Part 61.

15 We still plan to continue our dialogue with the  
16 Agreement States. We have an internet meeting and a phone  
17 call set up with the Agreement States for later this month.  
18 We plan to meet -- we were invited to speak at the EPRI  
19 [Electric Power Research Institute] Annual low-level waste  
20 meeting, which we intend to speak at.

21 And also we plan to have the third public meeting  
22 in July of this year, in Rockville, Maryland.

23 So let's just briefly go over some of the  
24 information we received at the March 2 public meeting. What  
25 we heard there was there was a need for a rulemaking crosswalk;

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1 in other words, there -- it may be a little difficult to tell  
2 where we are right now, because we had the site-specific  
3 analysis rulemaking well along, and then we received the other  
4 direction from the Commission in January superimposed on  
5 that.

6 So it was a little difficult to tell, well, where  
7 are we right now? So we prepared a crosswalk, we call it, to  
8 show the changes that have occurred from the current rule to  
9 the site-specific analysis rulemaking to how the current  
10 direction affected that rulemaking, and that information is  
11 currently on our website, and there was a handout out in the  
12 lobby with the crosswalk. So we've completed that action.

13 The other recommendation at the March 2 meeting  
14 was to expand the coordination with the Agreement States,  
15 because there wasn't -- was very little, if any,  
16 participation by the Agreement States at the March 2 meeting.

17 We've done that, too, and we will continue to  
18 do that. Like I said, we met with the Agreement States at the  
19 low-level waste forum, and we also met with the Agreement  
20 States during the CRCPD meeting last week. But we will  
21 continue to have a dialogue with the Agreement States.

22 At the March 2 meeting we were also -- other  
23 suggestions were made to include in the current rulemaking;  
24 recommendations were made to update the classification tables  
25 are part of this rulemaking, to extend the duration of

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1 institutional controls from 100 to 300 years.

2 A recommendation was also to revisit the Part  
3 20 Appendix G manifest reporting requirements, because in  
4 Appendix G there are four isotopes that are believed to be  
5 over-reported because of their being below minimum detectable  
6 levels, but they are reported at the minimum detect level.  
7 And so the request was made that we include that as part of  
8 this rulemaking.

9 There was also a recommendation in the March  
10 meeting to -- let's not forget about greater-than-Class C,  
11 that there's -- the rule may need to be revised for that as  
12 well, and we're also -- there was also a comment at that  
13 meeting -- I think it was from EPRI -- that there should be  
14 a category for low-activity waste.

15 So we received a number of recommendations at  
16 that meeting for other actions that should be included in the  
17 current rulemaking.

18 We're also -- there was discussion about the  
19 long-term comprehensive revision on March 2, and I think what  
20 we heard was, don't pursue SECY -- the long-term revisions  
21 proposed in SECY-10-0165 at this time.

22 You know, there was some belief on the -- by the  
23 audience that that rule may not happen, so let's talk about  
24 the present rule and incorporate actions into the current rule  
25 and not pursue that one at this time.

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1           We the staff still -- as we said at that meeting  
2           and as I've said at this meeting, we still have an action to  
3           do that; it's on our plate. The January SRM that came down  
4           to us specifically said to continue to engage stakeholders on  
5           SECY-10-0165, so we intend to do that. It's not up to the  
6           staff to determine that we don't need to follow the  
7           Commission's direction; that's not a good thing to do.

8           So we intend to follow the Commission's  
9           direction, and we think this is a good opportunity, even  
10          though the SECY-10-0165 long-term recommendations are down  
11          the road a ways. We were hoping to capitalize on these  
12          meetings to get any input you have on the long-term revision  
13          as well.

14          And if you don't have any comments at this time,  
15          that's fine, too. But we think this -- we want to capitalize  
16          on our -- on these meetings to get any input on the long-term  
17          revision.

18          This is the crosswalk that I referred to, and  
19          they tell me this is going to work. Let's see if this works.

20                   (Pause.)

21          DR. LESLIE: Drew, you probably don't need to  
22          do it since people already have the handouts, and we also have  
23          it up here visually for you guys to see as well.

24          MR. PERSINKO: Okay. Well, on the right-hand  
25          side you have the artist's conception of what the -- of the

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1 crosswalk. The artist's conception's on the wall on the right  
2 over there.

3 But on our website is the actual crosswalk, and  
4 also you have a handout that we had out front. The way I had  
5 it, I was going to discuss it, but let me just say, if you walk  
6 from left to right on that crosswalk -- that's the way I look  
7 at it: If you start off on the left-hand side, it will say  
8 what the current Part 61 has, then you move to the next column,  
9 and it will talk about what's changed in the site-specific  
10 analysis rulemaking.

11 And then you go over one more column and it will  
12 say what's changed as a result of the January 2012 SRM. So  
13 if you go from left to right on that crosswalk, you're able  
14 to see the changes that have occurred and how that -- and where  
15 we are today.

16 (Pause.)

17 MR. PERSINKO: I guess we've had another  
18 high-tech snafu here. Let me just close this.

19 Okay. If you look at it on our website and if  
20 you look at it on the handout, I think if you walk from left  
21 to right, you can see the change that has occurred -- the  
22 changes that have occurred, and on the far right column you  
23 can see where we are today.

24 In a nutshell, the work we did on the  
25 site-specific analysis rulemaking will still apply, except

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1 for the areas that have been superseded by the January 2012  
2 SRM from the Commission, and that was largely in the area of  
3 the compliance period and the period of performance.

4 In our site-specific analysis rulemaking that  
5 we were close to completing, we had included a 20,000-year  
6 period of performance; the Commission has told us to find a  
7 reasonably foreseeable future, and that's one of the inputs  
8 we're seeking today.

9 Okay. As far as the Agreement States, I told  
10 you met with the Agreement States several times and will  
11 continue to meet with the Agreement States. We had phone  
12 conversations with the four -- with four Agreement States,  
13 and we also -- South Carolina, Utah, Washington, Texas; we  
14 also spoke with Pennsylvania and Tennessee.

15 We met with the Agreement States during the  
16 CRCPD meeting, and we plan to have a webinar, as I said.

17 In general, on this high level, what we heard  
18 from the Agreement States was as far as -- regarding the  
19 Commission direction and some of the additional suggestions  
20 at the March 2 meeting was as far as the ICRP dose methodology  
21 is concerned -- flexibility, there was general support among  
22 the Agreement States for that.

23 As far as what is a foreseeable time frame,  
24 what's a foreseeable future, there was general support for  
25 something less than 20,000 years.

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1           There was some support for 10,000 years, and  
2 there was also -- it was also expressed that some of the states  
3 wanted to think about it some more, and they wanted to have  
4 further consideration on that.

5           As far as the waste acceptance flexibility is  
6 concerned, there was -- I think there was general support, but  
7 some concerns and reservations were expressed, and that being  
8 that it may add -- it may compound the ability of the states  
9 to assure that what's being shipped to the disposal site is  
10 actually what is in the manifest, I guess; what's supposed to  
11 be there, and whether it meets the waste acceptance criteria.

12           So there were some reservations expressed on  
13 that, and I think there may be some folks on the phone today  
14 that might be able to express that concern a little better.

15           As far as compatibility designations, I think  
16 we heard -- as far as time of compliance we heard some  
17 expressed a [preference for a] compatibility "C" designation,  
18 and we also heard that that's another area we want to think  
19 about some more from the states' perspective. We want to  
20 think about compatibility some more.

21           We also heard the states saying that they don't  
22 want to be forced to take large quantities of DU. As far as  
23 the Appendix G manifest reporting matter that was raised at  
24 the March 2 meeting, the Agreement States want to think about  
25 that some more before they weigh-in on that.

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1           As far as institutional controls extending from  
2 100 to 300 years, I think we had a mixed input from the  
3 Agreement States. Some states felt 100 years is a good  
4 number, we like it, we want to stay with it. And we heard  
5 others say 300 years seems reasonable. So I think we had a  
6 mixed reception on that one.

7           Timeline: Where are we? We're in the most  
8 left-hand box right now; we're in the "developing the  
9 technical basis stage." You can see in the top bar up there  
10 on the -- the top bar is the rulemaking part; the bottom bar  
11 is the guidance -- the associated guidance.

12           So right now we're in the far left up there;  
13 we're in the "developing the technical basis stage," and the  
14 information we're receiving during this meeting will -- we  
15 will address, and it will be factored in one form or another  
16 into the technical basis.

17           The technical basis document is -- must be  
18 completed by September, so we're on -- even though July next  
19 year looks pretty far away, we're on a pretty tight timeline  
20 right now.

21           So we owe the technical basis document to the  
22 folks at the NRC who actually put pen to paper and come up with  
23 the rulemaking process. There's a whole process for  
24 developing a rulemaking, and the technical basis is the first  
25 stage of that rulemaking.

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1 But in September we engaged the folks who do  
2 rulemaking, such as our project manager, Mr. Carrera, in the  
3 back, who is here today, sitting in the back. But that's where  
4 the actual pen to paper begins. And then there's a process  
5 for that.

6 But we are directed by the Commission to  
7 complete the proposed rule by July of 2013, as you can see,  
8 and then it will go to the Commission; the Commission will  
9 review and decide whether to publish it, but assuming they say  
10 go forward with it, we anticipate -- this is only  
11 anticipate -- that about a year to go from draft to final, from  
12 proposed to final rule.

13 And then you can see on the bottom, the bottom  
14 bar is the timeline for the associated guidance document.

15 So like I said, I think the overall message is,  
16 you know, July 2013 looks pretty far away; it looks like we  
17 got plenty of time to provide comments to NRC and develop it,  
18 but we really don't.

19 We want to get the comments received and  
20 analyzed to help us develop the technical basis document,  
21 which we must complete by September.

22 Okay. Now, as a little lead-in to Dave Esh's  
23 presentation, I'm just going to give an introduction on the  
24 low-level background. 10 CFR Part 61 are the NRC's  
25 requirements for land disposal of low-level waste.

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1           In it are contained performance objectives to  
2 ensure safe disposal, and the performance objectives are  
3 protection of the general public, protection of inadvertent  
4 intruders, protection of individuals during operations, and  
5 then to ensure stability after site closure. The  
6 demonstration is performed a technical analysis and via the  
7 waste classification tables.

8           Some recent developments are that the waste  
9 classification limits were based on the 1980s understanding  
10 of what the waste streams would be, and most recently some of  
11 those waste streams that were envisioned back in 1982 are  
12 changing; they're not -- they're different now.

13           And also the near-surface disposal may be  
14 appropriate for some of these waste streams, but not under all  
15 conditions, and we've said that in the citations you see at  
16 the bottom of the slide.

17           So we were directed by the Commission to develop  
18 a rule to address the near-surface disposal of large  
19 quantities of depleted uranium. And that's where we are;  
20 that's the site-specific analysis rulemaking.

21           So with that, that completes my presentation.  
22 Dr. Esh is next.

23           DR. LESLIE: Thank you, Drew.

24           Are there any questions for Drew before David  
25 gets started?

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1                   And we do have a question here, and then we'll  
2 check with the phones. Could you make sure you go to the  
3 microphone.

4                   MS. EDWARDS: Thanks, Drew. This is Lisa  
5 Edwards with EPRI.

6                   I was just going to ask if you envision any kind  
7 of public meetings or interfaces taking place during the  
8 development of the proposed guidance, which, you know, is  
9 showing from September of this year until July of next year.

10                  MR. PERSINKO: Right now I don't think so. I  
11 think we're hoping to have those meetings ahead of time in  
12 order to start developing the rule, because, like I said --

13                  MS. EDWARDS: You want the guidance.

14                  MR. PERSINKO: Oh, the guidance. Excuse me.

15                  MS. EDWARDS: Yeah.

16                  MR. PERSINKO: I think we would have it. We  
17 would prepare it, we would issue it for comment on the  
18 guidance. Excuse me; I thought you were referring to the  
19 rule.

20                  MS. EDWARDS: That's fine.

21                  DR. ESH: But not prior to the rule.

22                  MR. PERSINKO: Yeah. This would not go out  
23 before the rule.

24                  MS. EDWARDS: Yeah, the guidance --

25                  MR. PERSINKO: It would be issued concurrently

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1 with the rule, but the guidance would go public, but the rule  
2 would not; it would be sent to the Commission.

3 MS. EDWARDS: Right. So on slide 22 you have  
4 developing the proposed rule from September of this year till  
5 July of next year, and you have developing the proposed  
6 guidance during the same time period. And I didn't know if  
7 there were any planned interactions for development of the  
8 proposed guidance, or do we just wait until the publishing of  
9 the proposed guidance?

10 DR. ESH: I think the correct answer is the  
11 proposed guidance goes out when the draft rule goes out. They  
12 go out together for public comment, and then we receive  
13 comment on it.

14 But it's a good question. That's the way our  
15 process normally works, I believe. Should it work that way?  
16 I don't know, because we developed the guidance document to  
17 go along with the -- our initial regulation which didn't get  
18 issued in the draft form yet.

19 And that guidance document talked about a whole  
20 lot things, in a whole lot of detail, and it probably would  
21 have been of benefit for the stakeholders to see that. That's  
22 just not the way our process works. We tend to issue them at  
23 the same time and get comments on both.

24 MS. EDWARDS: If you're open to feedback, if  
25 there is any way to do a draft of the proposal and let people

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1 see it, that's an awful lot -- that comment period between  
2 July 2013 and July 2014, it looks like it's really only going  
3 to be about six months for comment, so that's a lot for folks  
4 to review in six months, two different documents, and provide,  
5 you know, any substantive comments on; takes a little research  
6 time to do that.

7 MR. PERSINKO: Okay. Thank you. The reason I  
8 hesitated a bit was in the last -- when we were doing the  
9 site-specific analysis rulemaking, we were pretty much out of  
10 process, really. We were -- in the spirit of openness; we  
11 were having public meetings even before a proposed rule was  
12 issued.

13 And that's not normally the way the rulemaking  
14 progresses. Normally we have -- we follow the process we're  
15 doing now for both the rule and the guidance document.

16 And because of the time constraint that's been  
17 put on us by the Commission, it would not be possible to follow  
18 that same model that we did in the site-specific analysis  
19 rulemaking.

20 So that's why I was hesitating a bit about  
21 probably not having the public meetings.

22 DR. LESLIE: Thanks, Drew.

23 Are there any questions on the phone line?

24 THE OPERATOR: If you would like to ask a  
25 question from the phone lines, please press \*1. Please be

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1 sure to record your first and last name when prompted.

2 One moment, please.

3 (Pause.)

4 THE OPERATOR: We do have a question from Linda  
5 Suttora [representing the US Department of Energy - DOE].

6 DR. LESLIE: Go ahead, Linda.

7 MS. SUTTORA: Hi, can you guys hear me?

8 DR. LESLIE: Yes.

9 MS. SUTTORA: Okay. I was just curious where  
10 I can find the presentation material on line.

11 DR. LESLIE: Linda, if you would join the  
12 webinar, you can find those slides, and let me tell you what  
13 the address is to.

14 MS. SUTTORA: Well, I'm on the webinar,  
15 but -- and I can see the slides that you're able to show, but  
16 I was just curious if there was a way I could just pull them  
17 up on my computer also. Do you have an ML number or anything,  
18 an accession number?

19 MR. SUBER: Linda, this is Gregory Suber. The  
20 slides for this particular presentation are not on line yet,  
21 but they are very similar to the presentation that we gave at  
22 the March 2 meeting, so if you just wanted to see the  
23 presentation, you can go on line on the low-level waste site  
24 and -- under "Unique Waste Streams," and you can pull up  
25 the -- get a copy of the presentation that we did on March 2.

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1                   These slides will be on line, but they will be  
2 on line at the conclusion of the meeting. We'll put the slides  
3 on line, and we'll also put the transcript on line, but they  
4 aren't on line in advance of the meeting.

5                   MS. SUTTORA: Okay. Because the crosswalk, I  
6 had to find that, but because you had accession number up  
7 there, I was able to pull it up, but the other stuff is not.  
8 Okay. Great. Thank you.

9                   THE OPERATOR: Our next question is from Mike  
10 Lee.

11                  DR. LEE: Yeah, hi. This is Mike Lee. All the  
12 presentation materials are on the web as we speak today. They  
13 were posted on Friday, so if John Greeves is listening and  
14 Linda Suttora is listening, just go the low-level waste  
15 website, where we have posted our other materials previously,  
16 and you can pull them up right now.

17                  DR. LESLIE: Thank you, Mike.

18                                 Any other questions on the phone?

19                  THE OPERATOR: Not at this time.

20                  DR. LESLIE: Thank you very much. And thank  
21 you, Drew, for getting prepared for Dave to start to go into  
22 some of the details.

23                                 Before Dave gets started, he's got a pretty long  
24 presentation. There are going to be several places where he's  
25 going to lay out a certain framework, and we'll start to really

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1 get into the questions and comments and technical basis.

2 So it's really -- we'll take a break probably  
3 somewhere in the middle of his presentation, because I have  
4 a feeling people are going to have a lot of stuff to say, and  
5 I think he's got something like close to 40 slides or something  
6 like that.

7 But anyway, Dave, go ahead.

8 DR. ESH: And it's pretty brutal to ask people  
9 to listen to me for that long. And we should give Mike credit  
10 for being more on top of things than we anticipated, of having  
11 those slides up, too.

12 So I'm going to talk about the site-specific  
13 analysis rulemaking for -- sorry; just a second.

14 (Pause.)

15 Thanks, Bret.

16 We'll talk about kind of an overview of what it's  
17 about, some of the issues that have been identified, and then  
18 what we're looking for a path forward.

19 So the site-specific analyses, for those of you  
20 that may not be aware, here's an overview of performance  
21 assessment that we like to use. Performance assessment in the  
22 center is a learning process, and it's iterative, but it's not  
23 meant to be never ending.

24 So it is a process where you evaluate your  
25 problem and learn about it and then hopefully the analysis

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1 helps you made decisions about what you need to do to mitigate  
2 risk and how you're going to mitigate risk.

3 Over all the process you evaluate what is  
4 assessed, so what can happen, how likely is it, what can result  
5 if it happens? It's conducted through multiple steps: You  
6 collect data, develop models, usually develop computer codes  
7 of some sort, and analyze the results.

8 Why is it used? We use it for complex systems,  
9 and it's a systematic way to evaluate data. Its' generally  
10 internationally accepted. And at the bottom we have some  
11 high-level bullets of what do we generally require of a  
12 performance assessment.

13 So in this rulemaking, the performance  
14 assessment technical staff doesn't really consider that it's  
15 anything new. Part 61 required technical analyses; it just  
16 used different terminology.

17 The performance assessment that's done today,  
18 they may have different software and different capabilities  
19 that can be explored in the analysis, but the technical  
20 analysis is not measurably different; it just has different  
21 terminology.

22 And performance assessment has developed over  
23 the years, over the past 30 years in particular, that some  
24 aspects of it are much more formalized, so how you develop  
25 scenarios and look at features, events, and processes, the

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1 consideration of uncertainties, some of those things were  
2 somewhat hampered by both technical understanding and by  
3 maybe computational limitations 30 years ago that we don't  
4 necessarily have today.

5 In addition to the performance assessment which  
6 is used to evaluate Section 61.41 in Part 61, we also are  
7 looking at an intruder assessment to demonstrate protection  
8 of the inadvertent intruder.

9 Now, the current regulation -- if you think of  
10 the crosswalk, the leftmost column, it doesn't have a  
11 requirement to do an intruder analysis because Part 61  
12 developed waste classification tables, generally from an  
13 intruder analysis.

14 It also -- Part 61 identifies design and control  
15 measures that you use to preclude intrusion and to limit  
16 radiological impacts. It's similar to a performance  
17 assessment, except you're looking at somebody disturbing the  
18 disposal facility or taking some sort of action on the  
19 disposal facility at a future time.

20 It's not anticipated -- we have controls in  
21 place, both active controls, for up to 100 years, which is a  
22 point of discussion; but then passive controls that we expect  
23 to last longer than that.

24 But the Commission viewed and generated in Part  
25 61 that they expected the -- we can't preclude the possibility

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1 of intrusion sometime in the future after those controls end,  
2 because remember, controls, whether they're active or  
3 passive, they're going to rely on things that we do today,  
4 especially the active ones.

5 You may have fences and guards and those sorts  
6 of things that have to be funded, so you have to have financial  
7 assurance for how long you need to have your active controls.

8 If you want to extend the active control period,  
9 say, from 100 to 300 years, then that's going to influence your  
10 financial assurance calculations and what you need to  
11 establish to reach that 300 years.

12 But then the passive controls are going to rely  
13 on things like zoning laws and other things; who owns the  
14 property, how the property may be used in the future. Those  
15 things are hopefully robust, but we don't have a lot of  
16 experience, particularly in the U.S., because our country's  
17 only 250 years old or so, how those things may work in the very  
18 distant future, preventing somebody from using the land.

19 And the other component that we had in the  
20 site-specific analysis to get at some of the longer-lived  
21 isotopes' effects is the long-term assessment. And our idea  
22 was that that would estimate the potential performance beyond  
23 some compliance period and use it to identify the features  
24 that you may use to reduce the long-term impacts.

25 And we recognize that there's a lot of

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1 uncertainly at the very long times, and that's why we didn't  
2 initially propose any sorts of limits associated with that  
3 period. We thought it would be more of a transparency issue,  
4 so you do the best you can if you're trying to develop a site,  
5 and you generate what you think the -- just as I was back on  
6 the performance assessment slide -- what can happen, how  
7 likely is it, and what are the results.

8           And that's information that we felt  
9 stakeholders would want to see: Well, what do you think can  
10 happen? How likely is it? What are the results? Even if  
11 there's a lot of uncertainly associated with it, you've done  
12 the best to inform your stakeholders, and they can make an  
13 informed decision.

14           So new direction; where are we doing now? One  
15 of the first things that was identified by the Commission was  
16 the ICRP methodology, and one of things they directed us to  
17 do is to consider allowing licensees the flexibility to use  
18 ICRP dose methodologies in the site-specific performance  
19 assessment.

20           If you had the opportunity to see the guidance  
21 document that we had drafted, we had already gone this  
22 direction, so -- and we feel it's -- as identified on the next  
23 slide, slide 9, the SRM-SECY-01-0148, that's already kind of  
24 Commission policy, is to allow people to use the best science.

25           So we want you to use the best science, but we

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1 also -- our guidance has said, "Don't cherry pick." So you  
2 can't pick the ICRP methodology that minimizes your doses  
3 across your different radionuclides; you have to choose one  
4 methodology and use that methodology.

5 And it would be a good idea to look at the  
6 uncertainty or variability associated maybe with the  
7 different methodologies, because they continually change.  
8 They go both up and down, and you would want to know, if you're  
9 a disposal facility operator or generator, how sensitive you  
10 may be to changes in the ICRP methodology.

11 But that we don't have any strong reservations  
12 with implementing in the rulemaking as we're going forward.

13 So this would be a point where we can stop and  
14 talk about ICRP, if you'd like. We're seeking your feedback  
15 on the flexibility to use the ICRP dose methodologies in the  
16 site-specific performance assessment.

17 I wasn't at the previous meeting, so -- and  
18 there may be new people in the webinar that weren't at the  
19 previous meeting, so if you have something that you'd like to  
20 talk about with ICRP at this point, I'd say give a brief  
21 introduction to what you talked about at the previous meeting  
22 so that people are on the same page, but the transcripts are  
23 available that people can review if they want more detail  
24 about what you said.

25 Do we have any discussion or -- oh, you want me

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1 to go to the next slide? Oh, okay. I'm sorry. One more  
2 slide, slide 11. We did have in the March 2 meeting support  
3 for allowing flexibility to use the ICRP dose methodologies.

4 So do we have comments or discussion that we want  
5 to have at this point before we move into the next area?

6 THE OPERATOR: If anyone on the phone would like  
7 to ask a question, please press \*, then 1.

8 DR. ESH: I think we have one here in the room.  
9 First Lisa Edwards from EPRI.

10 MS. EDWARDS: Well, thank you for the  
11 presentation thus far, David.

12 EPRI comments are more specifically directed at  
13 the use of the ICRP dose methodology for updating the tables.

14 But I guess a general comment would be we would  
15 always support the use of the latest science related to does  
16 impacts or limits that are provided. Given that the whole body  
17 is almost a nomenclature we don't hear anymore in plants  
18 themselves or in health physics circles, it would be  
19 appropriate to -- from a science standpoint to use this latest  
20 technology, dose conversion factors in particular, from the  
21 ICRP recommendations.

22 DR. ESH: Okay. That's a good comment, because  
23 there's two aspects to it. One, you can consider the ICRP dose  
24 methodologies the more modern methods than, say, Section  
25 61.41 or 61.42 types of analyses.

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1           Updating the tables for the new numbers is a  
2 different story. We did propose to the Commission in our SECY  
3 paper 08-147 -- when we were dealing with depleted uranium and  
4 what do you want to do with depleted uranium, one of the  
5 options was to revise the waste classification tables to add  
6 uranium.

7           And that was not an option that the Commission  
8 selected, and so what we're kind of left with is -- and what  
9 the stakeholders need to understand is Part 61 works very  
10 well, but a number of the components are hardwired into other  
11 pieces of the regulation.

12           So if you want to change one part, it affects  
13 other parts. You have secondary and tertiary effects of  
14 different components as you want to change your regulation.

15           Some things may look simple, but they're not at  
16 all simple at all, so, say, for instance, the institutional  
17 control period for the intruders, which we're going to talk  
18 about in a little while here.

19           The waste classification -- or the  
20 concentrations in the waste classification tables, some of  
21 them are derived from assuming 100-year institutional control  
22 period. So if you changed that to 300 years, that would lead  
23 me to say, well, you need to change the numbers in the table  
24 to be consistent with the new approach that you're doing for  
25 the institutional control period, if you changed the

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1 institutional control period and it wasn't an "or"  
2 flexibility type thing; then you could leave the table the  
3 same and people would have the flexibility to look at, I want  
4 to say, specific phases of the impact for their new period.

5 But I would just add that overall that this issue  
6 of changing the tables is a more difficult and tricky issue  
7 that we did present that as an alternative to the Commission  
8 initially, and they said, Take this approach of just allowing  
9 people to do the analysis instead of changing the tables.

10 And that is one of the main issues that's in  
11 front of -- part of SECY-10-0165, which is to risk-inform or  
12 modernize the waste classification part of the regulation.

13 So our ability to do it is somewhat limited, we  
14 feel, in the site-specific analysis, but it is something  
15 we -- it's a good comment. We consider it, and we'll look at  
16 it in more detail if we go forward in pursuing modifications  
17 under the SECY-10-0165 paper.

18 DR. LESLIE: Lisa, is this a follow-up?

19 MS. EDWARDS: It is a follow-up.

20 DR. LESLIE: And then we'll go to Dan after the  
21 follow-up.

22 MS. EDWARDS: Dan, can I have your spot for a  
23 second? Thanks, man.

24 This is Lisa Edwards with EPRI again. Thank you  
25 for that response. I had intended to save most of my comments

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1 related to the classification tables for when Gregory  
2 presents. Do you want them now? Because on the --

3 DR. ESH: I think you can do that, because we  
4 should try to focus on ICRP here and not get off. I may have  
5 gotten us off track. If I have, I apologize, but we should  
6 try to stop at each topic, talk about that topic, and then move  
7 on to the next one.

8 If there are things that you think are really  
9 parallel and a thought popped into your mind that you need to  
10 just talk about now, feel free to talk about it now. I think  
11 we'll have plenty of time today to cover all the material we  
12 need to.

13 MS. EDWARDS: Okay. So I'm not clear. Do you  
14 want me to save those comments until Gregory presents give  
15 them to you now?

16 DR. ESH: I'd say the threshold would be -- I'd  
17 prefer that we save them so we can have a contextual discussion  
18 of those topics. But if you have something that you just  
19 really need to say right now because I said something you want  
20 to respond to, I'd say go ahead and respond to it right now.

21 MS. EDWARDS: I just would have one comment,  
22 then. The modification of the tables to change the nuclides  
23 that are contained within the tables or to add, say, you know,  
24 items for the depleted uranium, that's different than what's  
25 being proposed in terms of just updating the methodology by

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1 which the algorithm is used to derive the concentration limits  
2 themselves.

3 DR. ESH: Yes. Thanks.

4 Dan?

5 MR. SHRUM: Dan Shrum with Energy Solutions.

6 Dave, you started this discussion by saying that  
7 performance assessments are not supposed to be never ending.  
8 We're running -- I don't have an answer to the comment that  
9 I'm going to make, but we're supportive of using the most  
10 recent dose methodologies. However -- and that's a Tom  
11 Magette issue, is the "however" -- when do they end?

12 Let me give you an example. You've prepared a  
13 performance assessment; you've submitted it to you regulator  
14 for review, and then a new methodology comes out.

15 So I don't know how you're going to address that,  
16 but it's happened to us recently on a completely different  
17 issue, not on this issue, but we are in the throes of preparing  
18 the new performance assessment using the updated  
19 methodologies, which we're supportive of, but how do you  
20 handle it when, you know, it takes a year and a half to review  
21 it, and there's two revisions during that period of time?

22 DR. ESH: Yeah.

23 MR. SHRUM: Which doesn't always happen, but it  
24 can.

25 DR. ESH: That's a good comment/question. And

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1 what I would say is that usually what's done for these types  
2 of performance assessments that we can consider in this  
3 process is the generator of the performance assessment or the  
4 disposal facility operator has some sort of threshold when new  
5 information comes in, whether it's new ICRP values or whether  
6 it's new technical data regarding, say, distribution  
7 coefficients at your facility or rate of erosion or whatever.

8           Some sort of input into the calculation changes;  
9 they have to have something in place to look at on a periodic  
10 basis, whatever that may be: once every five years or once  
11 every ten years. What's the impact of that new information  
12 on my facility? Does it impact the limits of the material that  
13 I'm taking?

14           So when you move to a waste acceptance criteria  
15 approach, you get into that sort of thing. You know, there's  
16 no free lunches in this business, and you can ask for more  
17 flexibility, but you may learn that that flexibility you asked  
18 for was not something that you're going to look at favorably  
19 sometime in the future.

20           So -- but that is what's done. It's usually an  
21 update process on some basis -- some periodic basis, and then  
22 as part of our rulemaking effort, prior to this that we didn't  
23 get to the draft stage on, we had in there that, at a minimum,  
24 you would update at closure.

25           So when you're closing the facility, you do kind

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1 of a final PA [performance assessment], ensure that  
2 everything is in line with what you had expected.

3 And the update process, I think that would be  
4 a good thing to be established with our stakeholders and by  
5 the Agreement States, because primarily right now the  
6 Agreement States would be the ones that have to be doing those  
7 reviews and evaluation; it would be their resources that they  
8 would be using.

9 So they would want to ensure that the frequency  
10 was appropriate based on the technical issues that come up and  
11 based on the resources they would have available to look at  
12 the changes that may occur.

13 DR. LESLIE: Dave, that was good.

14 Dan, let me try to paraphrase this.

15 Flexibility in using dose methodologies may be  
16 different than requiring continuing to update the  
17 methodologies, and I guess maybe that might be what you were  
18 trying to get at.

19 And so I think that Dan was trying to talk -- and  
20 I'm sure he's going to correct me now, but I think that's what  
21 I heard, and I wanted to make sure the staff understood that  
22 kind of -- you know, it's great to talk about flexibility, but  
23 to require them to continually update might be what his  
24 concern is about.

25 MR. SHRUM: Yeah. We're fine with updating and

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1 all that, but we're talking that during the actual process of  
2 doing a PA, when these things change.

3 So you are also tasked with developing guidance,  
4 and maybe consideration on this topic is not just with the dose  
5 methodology but when the PA is submitted for review, maybe you  
6 could have some sort of guidance that would specifically state  
7 those are the criteria that will be reviewed at this point in  
8 time.

9 Now, if something in the world of science  
10 changes so dramatically that it would require somebody to go  
11 back and reevaluate everything -- but what we find is they're  
12 very minor tweaks that still require us to go back and  
13 reevaluate everything, when in reality the world hasn't  
14 changed that much as we know it, but we have a new significant  
15 figure on one of the calculations.

16 DR. ESH: I would agree with that, Dan.  
17 It's -- it depends how much margin you build into your  
18 calculations and maybe how much bias you may have. So if  
19 you're really optimistic on a lot of the things you do in your  
20 calculations and then you collect information going forward,  
21 well, some of that information may come back to bite you.

22 But if you build in sufficient margin and you're  
23 reasonably conservative in how you do your initial  
24 assessment, then you should have yourself in a position where  
25 any new information comes in doesn't challenge your previous

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1 decisions and assessments.

2 DR. LESLIE: So are there any questions on the  
3 phone?

4 THE OPERATOR: Yes, sir. We have one question.  
5 That question comes from Linda Suttora.

6 MS. SUTTORA: Yeah, hi. This is Linda. So I  
7 was listening to the conversation, and it occurred to me that  
8 it might be helpful to hear how DOE does performance  
9 assessment, and one of the things that we do is we do an annual  
10 review, an annual update, it's called, and we test whether  
11 something significant has changed.

12 And if the -- if it has changed -- if something  
13 has changed enough that it would -- it could impact your  
14 performance objectives, then we -- you know, meeting the  
15 performance objectives, we do a new PA.

16 And in answer to your question, Dan, the way  
17 we -- when we're doing a performance assessment, we hit what  
18 we call a stop point, and from that point on, we try not to  
19 make changes.

20 However, if something totally new were to come  
21 up, like all new ICRP calculations, we would do kind of a  
22 back-of-the-envelope quick look, would this impact anything?  
23 If it doesn't, we say, the next PA will get it, because our  
24 PAs are revised on a regular basis.

25 Also, as Dave mentioned, we -- it's

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1 approximately every five years, but that's approximately when  
2 things change enough. If it hasn't changed after five years,  
3 we don't just automatically do a whole new PA, but  
4 if -- because we're looking at it on an annual basis, it's  
5 pretty easy to tell when it's time to do a new PA.

6 Thank you.

7 DR. ESH: Thank you, Linda. That was a good  
8 comment.

9 DR. LESLIE: Any other comments on the phone?

10 THE OPERATOR: We do have one from Sonny  
11 Goldston.

12 MR. GOLDSTON: Hi. This is Sonny Goldston with  
13 Energy Solutions, and the EFCOG [or the Energy Facility  
14 Contractors Group of DOE] waste management working group.

15 I buzzed-in when Linda did, and I was going to  
16 say some of the things that Linda said, so it's kind of like  
17 playing Jeopardy here on the phone.

18 But I wanted to add to what she said, that the  
19 DOE program that is going to be strengthened in the Order 435.1  
20 update has very specific review criteria for when you would  
21 conduct an unreviewed disposal question evaluation or a  
22 resulting special analysis.

23 So when you trip that criteria, if you have a  
24 proposed action or you have new information -- the new  
25 information may be the ICRP change -- you would do a special

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1 analysis, and then if you trip your criteria for regulatory  
2 review, then you'd have to go to your regulatory body for a  
3 review of that information.

4 If you don't, then you've done the analysis and  
5 you've taken a look at it, and you know where you stand. And  
6 in addition to that, you do the annual reviews that Linda  
7 mentioned and assess whether you need to do a performance  
8 assessment revision every five years.

9 So it's a process you may want to look at that  
10 really does tell you what you have to do in order to revise  
11 any new information that you might get in addition to ICRP.

12 Thank you.

13 DR. ESH: Thanks, Sonny.

14 DR. LESLIE: Yeah, thanks, Sonny.

15 Are there any more on the phone?

16 THE OPERATOR: Not at this time.

17 DR. LESLIE: Thank you very much.

18 Dave, ready to move on?

19 DR. ESH: All right. The next area that we're  
20 going to discuss is the 800-pound gorilla concerning period  
21 of performance.

22 First we'll talk about direction. What's the  
23 direction? Right now there's a nice kind of bar figure at the  
24 top of this that's separated into different components of  
25 institutional control period, then a compliance period with

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1 some uncertain boundary, and then a long-term performance  
2 period, also with some uncertain boundary, starting from  
3 closure and progressing forward.

4 And the direction that we got was to consider  
5 a two-tiered period of performance for the analyses. Tier 1,  
6 the compliance period covers the reasonably foreseeable  
7 future, and Tier 2, the longer period, is based on things like  
8 site characteristics and peak dose to a designated receptor.

9 The context for period of performance is that  
10 Part 61 does not currently specify a period of performance,  
11 and since most of our -- all our current facilities are in  
12 Agreement States, then they're free to set the period of  
13 performance as they see appropriate for their state and  
14 stakeholders.

15 And they do; the values that have been used have  
16 ranged from 500 years up to peak dose or 50,000 years in Texas,  
17 and the State of Washington I believe went out to 100,000 years  
18 in their EIS evaluations.

19 In response to the initial direction -- now,  
20 when we're saying initial direction here, this is not the new  
21 direction that we're talking about; that's why we have this  
22 crosswalk. It's the Rube Goldberg rulemaking, is the way we  
23 refer to it.

24 In response to the initial direction, we did a  
25 technical analysis of what factors we should consider in

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1 setting a period of performance, and we recommended a  
2 two-tiered approach.

3 So we're in alignment with the Commission in  
4 terms of the two-tiered approach. The specifics of that  
5 approach are what we'd like to get feedback on from the  
6 stakeholders on how you would set that.

7 In addition, as we've moved forward, I'm going  
8 to talk about both a summary of what's done domestically and  
9 internationally and then some ideas of maybe approaches to  
10 handle this problem that you don't have to rely completely on  
11 setting a period of performance; you can do other things to  
12 manage the risk.

13 So the compliance period, what we did is we  
14 looked at a variety of factors: technical, societal, equity.  
15 Societal is human activities; technical, the hazards and site  
16 characteristics; and then equity, inter- and  
17 intra-generational equity.

18 And possible approaches, we looked at  
19 fixed -- so NRC specifies numbers and everybody uses them,  
20 depending on the compatibility designation; maybe a  
21 site-specific approach where you develop what period of  
22 performance is appropriate for a particular site; then a  
23 combo.

24 And we discussed all of these in great detail,  
25 the pros and cons associated with them. The challenge is

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1 adding in the reasonably foreseeable future language. What  
2 does that mean?

3 So I would argue that if we're going to consider  
4 all sources of uncertainty, especially the societal  
5 component, then the reasonably foreseeable future is  
6 relatively short; maybe on the order of a few hundred years  
7 type of thing in the United States.

8 And the example I would give would be Las Vegas.  
9 You know, 300 years ago Las Vegas looked a lot different than  
10 Las Vegas looks today. That's sort of -- if you think -- many  
11 of your scientists and engineers, I'm sure, if you think in  
12 terms of derivatives, the rate of change is very large.

13 And I think that applies for a lot of locations  
14 and a lot of sites, is the derivative is large; the rate of  
15 change is large whenever we consider the societal component.

16 The question becomes, if you interpret the  
17 societal component that way, how do you balance that with the  
18 equity -- some sort of equity consideration? What's our  
19 responsibility today to future generations?

20 And, you know, the United States is part of the  
21 Joint Convention on Spent Fuel Management, and it has some  
22 statements that we subscribe to regarding protection of  
23 future generations. Now, the wording is a little soft, so you  
24 could look at it and interpret it differently. You could  
25 probably apply a very short compliance period and still argue

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1 that we're consistent with those bullets in the Joint  
2 Convention.

3 But you could -- other people could take a  
4 different opinion and argue that we're not consistent with  
5 those things in the Joint Convention. So we have to be careful  
6 what we do balances all factors and considers the various  
7 elements of the problem.

8 The second tier, as I talked about earlier,  
9 was -- may be more of a transparency and information type of  
10 requirement. In direction from the Commission, they said  
11 consider these characteristics of waste package, waste form,  
12 disposal technology, cover technology, and hydrogeology.

13 Sections 61.50 and 61.55 specify safe  
14 suitability and design requirements, and we also wanted  
15 people to consider the uncertainty in the characteristics  
16 over time.

17 The problem becomes, especially for the listed  
18 characteristics here, the first four of them -- waste  
19 package, waste form, disposal technology, and cover  
20 technology -- they all get technically challenged very  
21 strongly when you start talking about long time scales.

22 And then there's an expense associated with  
23 developing the technical basis for those things over long time  
24 scales. So how much should we weigh those things in  
25 developing the second tier compared to, say, the natural site

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1 characteristics, which is more what generally people rely  
2 upon when they're looking at long-term isolation.

3 So that's something that we want your feedback  
4 on from stakeholders, how we should balance these various  
5 identified characteristics.

6 And then they also had language in there to have  
7 a designated receptor, so that -- for us we talk about  
8 receptor characteristics: metabolic, behavioral, physical.

9 And then what does that mean in the context of  
10 this rulemaking? Should NRC fix it? Should it be done on a  
11 site-specific basis? Should you allow a combination of the  
12 two? And should it be limited to the current biosphere?

13 So what we know about people today, we shouldn't  
14 try to speculate about what people are going to be like in the  
15 future, in terms of their physical, metabolic, and behavioral  
16 characteristics.

17 Generally that's what's been done in the past,  
18 is the regulator says, Hey, I'm going to eliminate this source  
19 of uncertainty. We're going to chose what we think is a  
20 reasonably conservative representation of a person in the  
21 future, biasing it by what the person looks like today, and  
22 we're going to eliminate that source of uncertainty for our  
23 licensees and our stakeholders.

24 That doesn't mean it has to be done that way,  
25 but, as I said earlier, be careful what you ask for, especially

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1 in an area like this, where there can be very varied opinions  
2 and different interpretations of how you should consider  
3 uncertainty and the people component part of the problem.

4 And then performance metrics, especially for  
5 Tier 2, what should we consider for the metrics of the second  
6 tier? Should it be a quantitative dose or risk type of  
7 criteria? Should it be qualitative?

8 The approach we took in our other attempt before  
9 we got the new direction was that it was qualitative,  
10 primarily; it was an information-for-stakeholders type of  
11 criteria, and the stakeholders at a particular location who  
12 would be impacted or maybe their progeny or future generations  
13 would be impacted, they could decide, based on that evaluation  
14 of what can happen, what likely is it, what are the projected  
15 consequences, whether those are things that you should  
16 consider changing the waste that you accept or the design of  
17 the facility or other things to mitigate those hazards.

18 So if we look at the domestic compliance period  
19 comparisons, we have a table here [Slide 18], and what I would  
20 caution people on is if you try to distill this issue down to  
21 a number, say a value in years of how to represent a particular  
22 problem, it can be somewhat misleading sometimes, because in  
23 many cases there are other requirements in place that are  
24 being used to mitigate the problem, not just an analysis and  
25 a time frame.

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1           And you have to take the whole context of the  
2 problem to understand how the risks are being mitigated.  
3 Nonetheless, on this table we have an evaluation of the  
4 domestic compliance periods, and they range from EPA's RCRA  
5 [Resource Conservation and Recovery Act] regulations - 30  
6 years plus a reevaluation, reassessment type of thing;  
7 uranium mill tailings - 200 years; Part 20 and DOE Order 435.1,  
8 as it's on the books now - 1000 years.

9           The low-level waste disposal is in quotes,  
10 10,000 years, because it's not in the regulation, obviously,  
11 but it was in our NUREG-1573 that was developed by our  
12 Performance Assessment Working Group.

13           And, you know, there may be some desire to  
14 present that as well. It's a NUREG; it's a guidance document.  
15 How should it be considered? But it was developed by staff  
16 that probably had at least 300 years of experience in doing  
17 performance assessments, so it's not to be taken lightly.

18           They developed it over a number of years, and  
19 they were very experienced people. That's not a random number  
20 pulled out of the air.

21           And then there are other numbers here that we've  
22 shown for waste determinations: DOE siting guidelines,  
23 high-level waste and, for WIPP [or the Waste Isolation Pilot  
24 Plant] under TRU, and then high-level waste spent nuclear  
25 fuel. So they kind of cover a whole spectrum.

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1 Now, for international approaches [Slide 19],  
2 what we've done since the previous meeting is we've done some  
3 data mining, basically, and tried to find all we can on what's  
4 done internationally in this area.

5 And the one generalization we would make at this  
6 point is it appears that almost all countries and  
7 organizations set some sort of limits for the disposal of  
8 long-lived waste in the near surface, but they do that by  
9 different mechanisms.

10 So many of them will set concentration or  
11 quantity limits, and that may be expressed as a general  
12 number, so, you know, a certain amount of Becquerel's per  
13 kilogram of long-lived alpha is the way it will be expressed.  
14 Doesn't specify particular isotopes, just one hard number,  
15 and that applies for any disposal in that quantity or under  
16 that organization.

17 Some will place limits by disposal concept, so  
18 they'll just say, "No near-surface disposal at all of any type  
19 of radioactive waste in our country." Or they will say, "No  
20 near-surface disposal for waste above a certain  
21 concentration. All of that goes to deep geologic disposal."

22 Some countries will do it via analyses, which  
23 is what we were attempting in the previous draft rulemaking:  
24 specify some sort of long analyses that would allow you to  
25 capture the impacts from the long-lived waste.

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1 Still others do flux or other types of limits,  
2 and some do depth requirements, so they just say you have to  
3 dispose of long-lived waste below a certain depth.

4 So if we look at that in terms of figure -- and  
5 this may be a little hard to read; the font's pretty small to  
6 fit it on the slide. What we did is we took the information  
7 we could get, and we kind of put it into a flow chart in Slide  
8 20.

9 And we started at the top with a question, "Do  
10 they place some sort of regulatory limits on long-lived waste  
11 in the near surface?" And what we generally find is that, yes,  
12 almost all will specify explicit limits on long-lived waste  
13 in the near surface.

14 And the way this problem was cast was to look  
15 at, well, what would pass through the analysis and where it  
16 would end up. So on the left-hand side of the figure, IAEA  
17 [or the International Atomic Energy Agency] and current Part  
18 61, OECD [or the Organization for Economic Cooperation and  
19 Development - usually a reference to the Nuclear Energy  
20 Agency], and pretty much all the countries, they put some sort  
21 of limit on the disposal.

22 And then the various countries in their  
23 approaches are kind of further bifurcated as you go down the  
24 figure. So what you see is that in terms of depth  
25 requirements, current Part 61 has depth requirements for

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1 long-lived waste.

2           So in Section 61.55 it says for the long-lived  
3 isotopes, if they're less than 0.1, then they're Class-A; that  
4 has a depth requirement associated with it -- depth or  
5 intruder barrier. If it's more than 0.1, then it's Class-C.  
6 That has a different depth requirement or intruder barrier  
7 associated with it.

8           So that's what current Part 61 does; it does  
9 consider distributing long-lived waste and, based on its  
10 concentration, differently throughout the disposal or  
11 analysis concept.

12           Now, I should note that something like Japan  
13 here has a question mark, because I do not speak Japanese, and  
14 most of the reports I could find are in Japanese. So we did  
15 the best we could. We have talked about whether we want to  
16 send a letter out to all the countries through OECD or some  
17 other mechanism and see -- give them explicit questions; you  
18 know, can you answer this, this, and this, and get their  
19 answers back so we didn't misinterpret anything. But this  
20 reflects kind of a work in progress, where we are right now  
21 in our interpretation.

22           The vast majority of countries that we looked  
23 at specify some sort of concentration or quantity limits, and  
24 as I said, those may be isotope specific or they may be just  
25 a general number: 'X' Becquerel's per kilogram of long-lived

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1 alpha.

2 A number of countries, especially the European  
3 ones, will limit the disposal based on the geologic concept,  
4 some of those in like policy or regulation, but then some of  
5 them in maybe more practice.

6 Like Norway's regulations don't, I think,  
7 prohibit you from disposing of long-lived waste in the near  
8 surface, but their disposal facility is 50 or 100 meters below  
9 the surface in bedrock, basically, and it's a mined facility.

10 So in practice they -- I don't know if they -- if  
11 somebody proposed disposing of long-lived waste in the near  
12 surface, whether they would regulate it or not; the regulation  
13 doesn't specify, but their practice puts it pretty deep.

14 We also added the Agreement States on here, and  
15 the difference between, say, long and short, we were kind of  
16 saying a few thousand years, we're calling that short; of  
17 course, this is a very relative term. Most people would  
18 consider a few thousand years a very long number. And long  
19 was on the order of 10,000 or more.

20 Some of the facilities -- some of the countries  
21 go out well past 10,000 years, or they say you go to peak, no  
22 matter where that is, and that's for compliance. And they  
23 consider things like glaciation and all the other physical  
24 processes, the "ologies" and "isms" that are very complex and  
25 probably expensive to deal with.

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1 But in terms of our Agreement States, we've put  
2 Texas, Washington, and Utah under their new regulations in  
3 this long analyses bin; South Carolina, as we understand it,  
4 looks at 2000 years; we'll put them on the other side.

5 Something like the United Kingdom is a good  
6 example, so they basically say, "Well, you analyze for as long  
7 as the calculations provide you some sort of reliable  
8 information to make decision making." So that's kind of in  
9 line with, I'd say, the reasonably foreseeable; you're trying  
10 to say when is a number meaningful that I can do something with  
11 it, and when is it not meaningful anymore.

12 But then in practice, the regulators have asked  
13 for very long analyses, out past 100,000 years, looking at  
14 coastal erosion and all sort of processes like that, so the  
15 regulation doesn't break down to a number, and that's why I  
16 said if you're trying to take these and assign a number, you  
17 have to be very careful about it.

18 So something like Korea, I believe they  
19 have -- might be a few thousand years they specify in their  
20 regulation, and so you'd say, "Well, they should be on the  
21 right-hand side of the diagram." But they specify  
22 concentration or quantity limits before you do that analysis.

23 So they've passed the waste that they generate  
24 into a filter, and if it passes through the filter, then you're  
25 doing a few-thousand-year analysis. If it doesn't pass

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1 through the filter, it's not even available to analyze using  
2 that, say, few thousand years.

3 And then there's some countries like Finland  
4 fell out on this flux or other limits, which was very  
5 interesting. They basically set for longer term flux limits,  
6 based on consideration of natural rates of exposure to those  
7 materials.

8 So they said, "Well, we want to be smart about  
9 this. We don't want to limit people to some very low number  
10 if nature's going to expose them to very much higher numbers.  
11 Let's make sure that our disposal facility is in line with what  
12 nature is doing." And I thought that was a pretty interesting  
13 approach.

14 A number of countries are, I would say, smarter  
15 than the US in how they've gone about this problem, so they  
16 developed limits or requirements to try to avoid getting into  
17 arguing about the uncertainty associated with the long-term  
18 analyses; they say, Let's put other things in place to provide  
19 protection without getting into arguing what the numbers mean  
20 or how you do the analysis or what you need to consider.

21 They also have, I would say, a smarter waste  
22 classification system, so they separate their waste into  
23 short-lived and long-lived classes, and then they can set  
24 regulatory requirements appropriate for the short-term  
25 classes different from the long-lived classes, and they can

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1 dedicate facilities for the long-lived waste that are  
2 designed different and have different regulatory requirements  
3 than the short-lived radioactive waste.

4 In the US we tend to just put it all together,  
5 and then we're faced with trying to develop regulatory  
6 requirements that apply to all, and you don't want a facility  
7 that's taking cesium-137 to be analyzed in the same way for  
8 one that may be taking large quantities of uranium. They  
9 should be looked at differently in some way.

10 So what we'll try to do going forward as  
11 developing the technical basis is work in the international  
12 approaches and the summary of it and what do we think that  
13 means for our rulemaking.

14 So the feedback that we got at the  
15 previous -- from the Commission was, "... define a reasonably  
16 foreseeable compliance period and define a longer period that  
17 is not a priori but is developed based on the site  
18 characteristics and the peak dose to the receptor...."

19 And we want your feedback on that direction from  
20 the Commission, so how should we interpret reasonably  
21 foreseeable? What should we consider and why? The same  
22 thing with the a priori; what site characteristics should we  
23 consider? What is reasonable and smart to do? And then  
24 what -- how should we define this designated receptor? How  
25 much flexibility should we afford, and what sort of metrics

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1 should we apply for that second tier?

2 We also want your feedback on some things that  
3 I just talked about in alignment with the international  
4 approaches, do should we consider something like a simplified  
5 screening process with an option for the detailed analysis,  
6 which is kind of in line with the current Part 61, a Section  
7 61.55 and 61.58 analogy?

8 What that would look like is say you have  
9 long-lived waste that you want to dispose of. We, the NRC,  
10 could specify an analysis approach, which would be  
11 site-specific, but it would be somewhat constrained, which  
12 would be very similar to what we do in decommissioning.

13 So in decommissioning, we have kind of screening  
14 levels, that if you have a site you need to decommission and  
15 you have concentrations of waste in the environment, you can  
16 compare them to the screening levels, and if you meet the  
17 screening level, then the process is very simple. You don't  
18 have to do any detailed calculations or what-not.

19 If you don't meet the screening levels, then you  
20 move to the next step, where you can use RESRAD [a computer  
21 code] and do an analysis of your site. If you can't use RESRAD  
22 because your site is complex, then you do a true site-specific  
23 analysis with your own developed codes and the QA associated  
24 with that and all the problems that come with it.

25 But what we were thinking was we could consider

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1 something like that here. It would be in alignment with our  
2 current Part 61, because this is essentially how Part 61  
3 works.

4 NRC did the screening process essentially which  
5 resulted in the Section 61.55 tables. Then we said, Okay, if  
6 you don't want to live with Section 61.55, you can use Section  
7 61.58 and come in and ask for an exemption and do your own  
8 approach.

9 The same thing could apply here. We could  
10 specify in regulations the screening process that you use, and  
11 then if you don't want to use the screening process -- the  
12 screening process should be easier and less painful for both  
13 a disposal facility operator and for an Agreement State  
14 regulator to implement -- then the next step, which would be  
15 a complex analysis, site specific, do all your own thing -- I  
16 would think that would afford a lot of flexibility, and  
17 hopefully it would address the needs of our regulated  
18 community, both the disposal facility operators and our  
19 Agreement States.

20 And we could do things like disposal depth or  
21 flux requirements; you know, the existing regulation has  
22 disposal depth requirements. We could specify disposal depth  
23 requirements for long-lived waste or other things, as I  
24 discussed.

25 So the feedback that we got in the March 2

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1 meeting, as Drew had indicated previously, is some support for  
2 1000 years, some support for 10,000 years, and some support  
3 for intermediate numbers between 1000 and 10,000 years.

4 And as I indicated, this is one way to skin the  
5 cat; maybe there's some other ways that we can consider that  
6 might be smarter than just trying to get consensus on a number  
7 that a lot of people have some very differing views on and it's  
8 hard to achieve consensus on.

9 And then we also can consider what are the  
10 performance metrics for the second tier.

11 DR. LESLIE: Dave, thanks for laying out quite  
12 a bit of new information on the period of performance, and I'd  
13 like to open it up here in Dallas for any questions or comments  
14 on this period of performance, if you don't mind just lining  
15 up by the --

16 MS. EDWARDS: I just have a quick question.  
17 What's long-lived?

18 DR. LESLIE: Lisa Edwards asked what is  
19 long-lived radioactive waste?

20 DR. ESH: In our draft regulation we defined  
21 long-lived consistent with the current regulation, so in the  
22 current regulation, if you look at the tables of isotopes,  
23 what are considered long- and short-lived, we had carbon-14  
24 as one of the long-lived isotopes, and how we defined  
25 long-lived in our draft was if you had, I believe, 10 percent

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1 of the activity remaining at 20,000 years, that would be  
2 considered long-lived, which is consistent with carbon-14,  
3 which you have like eight point something percent remaining  
4 at 20,000 years.

5 That is an area of discussion that we could get  
6 feedback on from our stakeholders. Many programs will define  
7 long-lived as greater than 30 years, so that opens up the  
8 analysis to a lot more isotopes than maybe we had anticipated  
9 or NRC has in the past with defining something long-lived.

10 Some define it even shorter than 30 years, where  
11 the demarcation is between short- and long-lived. So in our  
12 analyses we haven't changed from what we did in the draft  
13 regulation; we didn't get any -- yeah, the draft that we had  
14 worked on, we didn't get any feedback from the Commission  
15 otherwise in that area.

16 But it is -- you have to kind of define the  
17 boundary between what is short- and long-lived. That's how  
18 we did it. We could consider more feedback on that and a  
19 different alternative.

20 The problem is that you have to be careful.  
21 Using a hard number may not make complete sense, depending on  
22 your problems and your other regulatory requirements. So if  
23 you specify 30 years, for instance, that may -- at one site  
24 30 years may be an appropriate boundary for short- and  
25 long-lived, whereas at another site it may not.

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1           In our view, the long-lived should have two  
2 considerations. It should have the half-life and the K  
3 characteristics of the material but then also the full suite  
4 of inventory that you've going to evaluate. How much  
5 long-lived waste do you have and what are the characteristics  
6 of it?

7           Dan, do you have a question?

8           DR. LESLIE: Go ahead, Dan.

9           MR. SHRUM: Dan Shrum with Energy Solutions.  
10 We realize that this will be a considerable challenge,  
11 defining what is reasonably foreseeable; we accept that. We  
12 accept that there are 20 people in this room with 30 different  
13 opinions on what the numbers should be.

14           If you're going to go with a number -- which it  
15 sounds like you're making cases on both sides: A number would  
16 be good; not having a number would be good. I understand all  
17 of that.

18           But if you look at the United States as a whole,  
19 most of the disposal of low-level radioactive waste occurs at  
20 the Department of Energy sites. So if you want to have a  
21 consistent number and if you feel that you have to have a  
22 number, then let's make it consistent with what the Department  
23 of Energy does.

24           I can think of two sites where, if you don't come  
25 up with the same consistent number the DOE has, there'll be

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1 one criterion here, and on the other side of the fence there'll  
2 be a different criterion, and that's not good policy.

3 So we promote the thousand years; we also  
4 promote looking much longer than that and looking at all the  
5 other extenuating circumstances that may affect disposal of  
6 a certain waste type. But for a number that needs to go in  
7 a model to help with the decision-making process, 1000 years  
8 is a great number. Thanks.

9 DR. ESH: So would -- Dan, one follow-up.  
10 Would you specify any other requirements or restrictions or  
11 only the thousand-year analysis.

12 MR. SHRUM: I think the -- all those other  
13 criteria are going to fall out at the specific sites so I think  
14 that's a natural outcome of -- again, I wouldn't specify  
15 anything other than that thousand-year criteria.

16 DR. ESH: All right.

17 MR. SHRUM: Actually, I did have one other I  
18 forgot to look --

19 DR. LESLIE: Go ahead, Dan.

20 MR. SHRUM: If you don't mind. I'm sorry.  
21 Every time the Section 61.58 provision is brought up, I get  
22 to bring up the fact that not all states adopted 61.58 -- hi,  
23 Greg.

24 So that's kind of an issue too. That gets to  
25 down the road when we start talking about compatibility, on

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1 what the compatibility of this rule's going to be but, you  
2 know, state of Utah did not adopt NRC's Section 61.58. That's  
3 not an option right now. Maybe we could change the  
4 compatibility of Section 61.58. Thanks.

5 MS. EDWARDS: Lisa Edwards with EPRI. I'd like  
6 to just introduce a concept for how you pick a period of  
7 performance, at least for your Tier I, but I have to take an  
8 exception to depleted uranium, so it's kind of a  
9 monkey-in-the-wrench because it has different  
10 characteristics than any of the other low-level radioactive  
11 waste that we typically try to dispose of.

12 So if you think of everything except for DU, the  
13 hazard is, by and large, decreasing consistently over time  
14 based upon the half-lives. If you develop a profile of your  
15 various nuclides and the projected inventories in any given  
16 disposal site or hypothetical disposal site from one of the  
17 new regulations, you can pretty easily plot out where -- what  
18 nuclides are the nuclides of concern at any given time period.

19 And pretty much, in our work, after about 500  
20 years or so, you're basically to carbon-14 and TRU. The  
21 contributions from your other nuclides are more or less  
22 minuscule, relative to the hazard that's presented by  
23 carbon-14 or the transuranics. So I would suggest that one  
24 approach you could take is you map out that profile and you  
25 say twice that period, so 500 years basically you're into

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1 carbon-14 and you could make it, you know, a million years long  
2 and you'd still be at carbon-14. Right?

3 So at twice 500 years, you're at 1000 years which  
4 suggests some harmony with DOE, and since our disposal sites  
5 are housing both DOE waste and commercial waste, there's a  
6 certain attractiveness in that compatibility, and there's a  
7 technical basis relative to the half-life of the hazard of  
8 greatest interest.

9 Now, that doesn't cover DU and I understand  
10 that. To me, DU's a little bit different animal and rather  
11 than try to create a regulation that subjects all low-level  
12 waste to the requirements that may be necessary for depleted  
13 uranium, perhaps we should have a set of rules that fits, you  
14 know, the bulk of the low-level waste and acknowledge that DU  
15 may have a subset or special requirements similar to discrete  
16 items that is covered in the branch technical position, that  
17 kind of approach.

18 DR. ESH: One thing that we should discuss is  
19 that the -- there's a difference between hazard and risk so,  
20 you know, the hazard that we see in the isotopic profile, the  
21 waste that goes into a disposal facility, is -- and this is  
22 a good thing. Most facilities mitigate the hazard from most  
23 of the isotopes completely. That's what they're designed to  
24 do is to keep the material in while it decays and not get out.

25 The performance assessment though is then

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1 focused on the fraction of those isotopes that don't meet that  
2 description, the ones that the facility has -- the facility  
3 in combination with the site is challenged to try to contain,  
4 and what are the impacts associated with those?

5 And those are, as you indicated, carbon- 14 and  
6 the transuranics, but then also iodine-129; technetium-99;  
7 chlorine-36; in some cases, selenium- 79 -- there's a whole  
8 suite of isotopes that are in the more mobile class,  
9 long-lived, generally low specific activity, but they're the  
10 ones that can challenge groundwater pathways in particular.

11 So when the NRC's Performance Assessment  
12 Working Group looked at the problem, they ran computational  
13 models of projected inventories and looked at the risk that  
14 they got out, and they basically said, well, we think we need  
15 about 10,000 years to capture those other ones that I just  
16 mentioned which, in some circumstances, can cause risk or  
17 significant risk.

18 And you can see that -- I should have had the  
19 reference -- I don't have it; I can send it to people if you  
20 email me. There was a report I saw -- it was a Department of  
21 Energy report for one of the Hanford facilities. I think it  
22 was the ERDA [Energy Research and Development Agency]  
23 facility or the intermediate -- the waste-disposal facility  
24 being generated there.

25 And they had a performance assessment of it, and

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1 they had some interesting numbers regarding uranium risk, in  
2 particular, wherein in 1000 years the health risk from uranium  
3 was something like nine orders of magnitude less than the  
4 value that they got then within 10,000 years.

5 And that's what you're dealing with in these  
6 problems is that the delay in the hydrogeology and in the  
7 engineered features of your waste disposal facility, it may  
8 act to have very low risk in 1000-year time frame but then  
9 don't remain low after the thousand-year time frame.

10 And the issue is, well, then, what's our  
11 obligation -- stakeholders, government, NRC -- for having  
12 some sort of requirements associated with that aspect of the  
13 problem. And that's what -- I understand the feedback on the  
14 thousand years' analysis and we definitely agree with you  
15 about that there's some materials that are different from  
16 others.

17 And, as I said, our waste classification system  
18 is not as eloquent as maybe some in some other countries that  
19 allow them to specify requirements for particular types of  
20 waste or -- but that's a comment that you made and it's  
21 something we've considered as, hey, can we be smarter about  
22 this and maybe develop some requirements that are more  
23 tailored to the risk posed by certain materials compared to  
24 others.

25 MS. EDWARDS: I would have two comments back to

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1 that. I think it's a very complex problem and you've clearly  
2 given a lot of good thought. On a couple of the nuclides that  
3 you mentioned, with the iodine-129 and technetium-99, simply  
4 are not present in the disposal environment in the quantities  
5 that are currently reported.

6 So I think before -- or included within any  
7 analysis that you do, you need to try to get a sense of what  
8 the actual inventory of technetium-99 and iodine-129 is  
9 versus what was manifested because of what we brought up with  
10 the Phantom Four and the manifesting requirements. They're  
11 grossly overestimated, maybe --

12 What was it, Tom, in some cases, by a factor of  
13 1000 or more?

14 (No response.)

15 MS. EDWARDS: So pretty significant  
16 overestimation of the inventory there. The other thing is,  
17 and this is maybe not so science-based. It's just a comment.  
18 When we talk about the inter- versus intra-generalization  
19 obligations, there's a part of my mind that always flips to,  
20 well, if you preclude disposal, the presence of those nuclides  
21 has not gone away.

22 They're still being generated in whatever  
23 quantity they're being generated in, and you have to decide,  
24 from one generation to the next, what makes the most sense in  
25 terms of obligation. Do you leave it in the local yards and

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1 not disposed of and think that that's a better, safer ultimate  
2 disposition for it than in a disposal facility where perhaps  
3 you institute monitoring requirements to look for those  
4 long-term performance issues.

5 And I guess, in my heart of hearts, I feel,  
6 consistent with our Volume Reduction Policy Statement, et  
7 cetera, the preferred disposition is disposal. And when I  
8 balance the intra- versus inter-generational my preference  
9 would be to have it in the ground, in a controlled facility,  
10 rather than a storage setting.

11 DR. ESH: And I think our preference would be  
12 to have it safely disposed of so, you know --

13 MS. EDWARDS: Oh, absolutely.

14 DR. ESH: If they can meet the requirements,  
15 then by all means -- and as we kind of beat around the bush,  
16 the question is, well, what are the appropriate requirements  
17 to set that policy, you know, if you set the requirements too  
18 strict, then basically you're going to eliminate or make the  
19 disposal very expensive; and if you set them too loose, then  
20 you could have a health and safety issue associated with it.  
21 So where's the balance in between.

22 And I think there are ways to do this. We  
23 certainly can do it with a -- setting a period of performance,  
24 for instance. We can also do it with some other requirements  
25 that I think would achieve the same goal because in existing

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1 Part 61, it has both concentration limits, depth  
2 requirements, as a way to mitigate the risk from long-lived  
3 waste.

4 When NRC developed Part 61, it wasn't that we  
5 have no obligation to some long-term risk; it was, let's put  
6 some easy -- or some simple requirements in place that's going  
7 to facilitate this process that's going to provide  
8 protection. So when we talk about it today and we talk about  
9 period of performance, we can't forget that the original  
10 drafters of Part 61 and the Commission in its policy of  
11 adopting it had that philosophy in mind.

12 So if we are going to move away from that  
13 philosophy, we need to really explain why we're moving away  
14 from it and have a good answer for it.

15 MS. EDWARDS: Uh-huh.

16 DR. ESH: And I think if we went with just a  
17 short period of performance it would be a challenge to explain  
18 what's the reason for that, unless we had an analysis that  
19 supported that case. I think if we have some other  
20 requirements that go along with it, that's something that we  
21 could argue as in alignment with the original Part 61, affords  
22 flexibility and provides protection. So --

23 MS. EDWARDS: Okay.

24 DR. LESLIE: We've got another comment here.

25 Rod, you can go ahead.

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1 MR. BALTZER: Rod Baltzer, Waste Control  
2 Specialists [WCS]. WCS I think, is the only company that's  
3 gone from green fill to actually disposing of waste under  
4 these Part 61 requirements. I mean, we did it through Texas,  
5 an Agreement State. I do like the idea of a two-tiered system,  
6 being able to have a performance period and then, you know,  
7 measure out to peak dose, or whatever that it.

8 I think the performance period needs to be  
9 sufficiently long to give you enough public confidence. One  
10 of the things that helped us tremendously was the confidence  
11 we had from our local community as well as the state of Texas,  
12 and part of that was just the rigor involved in this process.

13 So if you made that a very narrow window, I think  
14 some of them get a little uneasy with that. And even though,  
15 you know, it's a technical requirement, there's a lot of other  
16 factors at stake with the disposal of low-level waste.

17 Most of the public don't understand the  
18 technical aspects of this at all; it's hard to boil this stuff  
19 down into 30-second sound bites, and if it's longer than that,  
20 they don't want to pay attention to it. They just want to say,  
21 no. So I would encourage a longer 10,000-year period, for  
22 example, for that.

23 As Lisa mentioned, do you and some of the other  
24 waste streams -- they do provide special items that you need  
25 to consider for longer periods as well. But I think that's

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1 important; just don't forget the public process in this as  
2 well.

3 DR. LESLIE: Okay, Rod. Dave, I'm going to  
4 challenge you a little bit and then probably it's going to  
5 bounce back to Lisa, but could you go back to your Slide 15.  
6 I mean both Lisa and Rod said something about depleted  
7 uranium -- you know, certain characteristics where the risks  
8 increase with time.

9 And on this slide you kind of talked about, well,  
10 there's kind of things that don't last forever and then  
11 longer, and so in terms of the site-specific, how do you  
12 envision that you -- you know, you have a responsibility to  
13 allow safe disposal of all the waste streams. I mean, again,  
14 we don't want to have an orphaned waste.

15 Can you talk about a little bit more about trying  
16 to address the two and see if that resonates with both of you  
17 because, Rod, I did hear that thing that it's important from  
18 a long time frame from the public as well so --

19 DR. ESH: Yeah, well, on this slide what we had  
20 listed was the characteristics that the Commission  
21 identified. When we did our evaluation we also considered the  
22 waste characteristics which I think both of you commented on.

23 The Commission didn't list the waste  
24 characteristics but we kind of feel that when you look at  
25 what's done, even domestically, and especially

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1 internationally, that's one of the primary things they look  
2 at. It's the first thing off the boat that they're looking  
3 at is the waste characteristics. So we should probably at  
4 least mention that we think waste characteristics are  
5 important to consider and that could influence the  
6 requirements that you need to specify.

7           When we did our draft we thought we were smart  
8 enough when we said peaking you'll dose within 20,000 years  
9 because we felt if you have short-lived waste and your peak  
10 occurs earlier than, then you'd be able to demonstrate that  
11 you've captured the peak from your risk and you don't have to  
12 concern yourself with what's happening out to 10- or 20,000  
13 years in terms of the technical analysis.

14           But I guess that wasn't flexible enough or at  
15 least we'll talk about it in the technical basis and going  
16 forward whether we still think that's the right approach or  
17 whether we need to consider one of these other alternatives.

18           But, as Bret indicated, some things, especially  
19 the waste package, waste form disposal technology -- cover  
20 technology, they have a much different role when you're  
21 talking about short-lived than long-lived waste for most of  
22 current, near-surface type of designs.

23           When you go to deep geologic disposal, and  
24 especially disposal of high-level-waste-type-of materials,  
25 then the engineer components can play a much stronger role

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1 because they're putting in a lot more science, expense and  
2 engineering to developing those components.

3 So we are not opposed to low-level facilities  
4 putting more engineering into their facilities, and crediting  
5 that engineering, if they can. It just is -- it's expensive  
6 to do that and they have to decide whether that's the right  
7 business decision for them, to mitigate their risk by using  
8 engineering or not.

9 In general, the low-level radioactive waste  
10 disposal philosophy has been to limit the types of materials  
11 you take and choose a good site and ensure that your site and  
12 the material you're taking are compatible with each other. So  
13 I don't know if that helped any but it was something that  
14 seemed to be separated and I wanted to bring it back together.

15 Dan?

16 MR. SHRUM: Let me just ask a question for Rod  
17 first.

18 Rod, did you say you supported 10,000 years or  
19 did you say longer than 10,000 years. I just want to hear what  
20 you said.

21 MR. BALTZER: I'd support a 10,000 performance  
22 period and then a second tier further out than that for peak  
23 dose.

24 DR. LESLIE: Okay. Dan?

25 MR. SHRUM: Dan Shrum with Energy Solutions

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1 again. The issue that we find with whatever period of  
2 performance that -- you're talking about a compliance period  
3 and 1000 years is a compliance period. Built into proving or  
4 demonstrating that you meet the compliance period is  
5 demonstrating that your facility, and all of its components,  
6 are stable and solid for that period of time also.

7 So if you go much beyond the thousand years, or  
8 reasonably foreseeable -- or I could use any vague term that  
9 you want -- then you start getting into an engineering  
10 analysis of how do you demonstrate that a liner lasts that  
11 long, or a piece of concrete lasts that long, or a container  
12 lasts that long.

13 So it's easy -- actually, it's relatively  
14 easy -- you know this -- to run the model. Running the model  
15 is -- running it out to a million years takes a fraction of  
16 a second longer than running it out for 1000 years. That's  
17 not what we're talking about.

18 It's the supporting justification for the  
19 components of what make that facility operable. That's the  
20 challenge. And if you go much beyond -- I agree with  
21 what -- what Rod said is we have to have public confidence in  
22 what we do also, but if I go to the public and say, I know that  
23 this is going to last for a million years, that's a tough sell  
24 also.

25 So somewhere there's that balance and those

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1 things have to be put into the calculation, into the  
2 consideration when -- if a number ultimately is achieved.

3 DR. ESH: And that's a good comment. 61.41 has  
4 a requirement under Section 61.44 for stability and the  
5 stability requirement talks about stability of the waste  
6 itself in addition to stability of the site, which you're  
7 supposed to pick a site that's stable, consistent with the  
8 material that your taking.

9 In the concepts section of Part 61, it says  
10 stability is a cornerstone of disposal. That was the NRC  
11 concept of, we're going to concentrate, contain and prevent,  
12 or prevent to the best we can, release of, not disperse and  
13 dilute, which also mitigates risk. And we allow credit for  
14 dispersion and dilution from your facility but the concept is  
15 based on concentrate and contain.

16 So Section 61.44 does not have a time frame  
17 associated with it. I don't know what's done in the state  
18 regulations but in NRC regulations -- and if you look at the  
19 site -- the selection of a site and that part of the  
20 regulation, it basically says you need to pick your site to  
21 contain your waste based on the characteristics of the waste  
22 that you're accepting.

23 So that's another area we haven't really gotten  
24 into but you have to recognize that the regulation has a  
25 philosophy associated with it and when NRC did the whole

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1 approach of developing Section 61.55 and setting the  
2 concentration limits, that limited the amount of long-lived  
3 waste that you're going to take in a facility which therefore  
4 made that stability part of the problem somewhat easier  
5 because you don't have to worry about demonstrating stability  
6 at very long times.

7 If you were going to take large quantities of  
8 concentrated waste -- that's part of this rulemaking process,  
9 what's appropriate to demonstrate stability for that time  
10 frame. It's evaluation of the stability and where's the  
11 limits of the current generation's responsibility for  
12 ensuring that. That's kind of an open question.

13 DR. LESLIE: Are there other comments here, or  
14 let's check with the phone.

15 THE OPERATOR: Yes, we have a question from  
16 Sonny Goldston.

17 DR. LESLIE: Go ahead, Sonny.

18 THE OPERATOR: That may have been from earlier.  
19 I'll move to the next question with --

20 MR. GOLDSTON: I'm here. I'm sorry. I was on  
21 mute. I apologize.

22 This is Sonny Goldston with EFCOG again and the  
23 EFCOG has recommended to the Department of Energy and is now,  
24 since you asked us the question, recommending to NRC that you  
25 use 1000 years for your compliance period. But captured with

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1 that is the site-specific performance assessment, taking into  
2 account waste form and engineered barriers and engineered  
3 controls, if you have them, and you can use them, which results  
4 in a waste acceptance criteria for your site based on the site  
5 itself, not on a generic site.

6 And then you have a waste acceptance criteria  
7 on an isotope-by-isotope basis for your specific disposal  
8 units that you have, depending on how you design them. You  
9 can apply this same approach to depleted uranium.

10 Then, the second tier number that -- we do  
11 support that concept as well and we've recommended to DOE, and  
12 now to NRC, a qualitative analysis to at least 10,000 or peak.  
13 To inform the analyst -- and you can use your same performance  
14 objectives to assess your -- how you take that information  
15 into account if you have something that makes you scratch your  
16 head and say, "Gee, I wonder why this number is so close to  
17 this, or it continues to increase, and what should I do about  
18 that, and what's reasonable to do."

19 I wanted to make a comment too about the  
20 screening process, Dave, that you mentioned as a possibility  
21 for setting limits and then asking for an exemption, if you  
22 prefer to do that, and then doing a detailed analysis.

23 I don't think anybody will ask for the exemption  
24 and do a performance assessment. I think that's a  
25 non-starter. I've never seen in my career anybody ask for an

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1 exemption. You know, it's just like, no, we're not going to  
2 do that.

3 In fact, you'd have to get the Agreement States  
4 to put that process in place as well. I don't think it would  
5 happen. So since the -- those are my comments. Thank you.

6 DR. LESLIE: Sonny, this is Bret Leslie, the  
7 facilitator, and I'm going to ask -- I think I heard the "why"  
8 for the first part of the performance period but you talked  
9 about a qualitative for the second tier and I don't think I  
10 heard the technical basis or reasoning for why it should be  
11 qualitative.

12 So do you have -- since you've recommended that  
13 to DOE, did you lay out some basis for why a second tier of  
14 a qualitative approach would be appropriate?

15 MR. GOLDSTON: There's actually -- it's in  
16 draft and I'm not sure we could release it right now, but there  
17 is a technical basis for both of those recommendations. And  
18 in general, we've heard it from, I think, some of our speakers  
19 already that it's very difficult to go a long period of time  
20 and have any confidence in an analysis.

21 But when you look at the analysis for a long  
22 period of time, you can get numbers that tell you that you're  
23 close to some performance criteria. Say, your all-pathways  
24 analysis is showing that you're going to be below groundwater  
25 concentration limits that you want to set, or say there are

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1 drinking water limits at your point of compliance, and you're  
2 close to them but you're still below them.

3           And so when you do your analysis, you look beyond  
4 that period of time that -- your compliance period, and you  
5 find that you're slightly above them, or -- and you may want  
6 to say for particular isotopes so you might want to say, gee,  
7 you know, I ought to do something about that. There can be  
8 criteria if you wanted to set numerical criteria for how close  
9 you would be.

10           I think what we've talked to DOE about is if you  
11 go above a certain standard in your qualitative analysis and  
12 you take a look at it and you say, gee, I really need to think  
13 about putting an additional barrier in place for that  
14 particular isotope, and DOE looks at it as a regulator and  
15 says, gee, you know, that's reasonable that you do that; we  
16 encourage you to do that. So --

17           DR. LESLIE: Thank you, Sonny, for amplifying  
18 on that. I think that was helpful.

19           DR. ESH: Yeah, because with the second tier and  
20 having a -- well, qualitative, or no limit to it, we're left  
21 with that issue, not both the ones that you described, Sonny,  
22 in terms of -- if they're, say, much below later, or close to  
23 it, or a little bit over, but what happens if they're a lot  
24 over in the second tier?

25           We don't have any enforceability to make

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1 somebody do something about that if we don't have a limit  
2 associated with it where I think our enforceability is  
3 limited. I would have to defer to our legal people but we've  
4 talked about this in our working group as to, well, what does  
5 it mean for that second tier if we don't provide a limit and  
6 somebody generates a bad outcome; well, then, what can we do  
7 about it? I don't know.

8 Lisa, do you have anything to add on that?

9 MS. LONDON: I think our --

10 DR. ESH: Sorry to make you get up.

11 MS. LONDON: No, I think what we said was our  
12 enforceability would be predicated on whether there's a  
13 health and safety risk.

14 DR. ESH: Yeah.

15 MS. LONDON: And so, you know, there may not be  
16 a number associated with it but if we feel we have established  
17 evidence to sort of determine there's a health and safety risk  
18 that needs to be dealt with, that would be our enforceability  
19 angle.

20 DR. ESH: Yeah. So that would be -- I guess  
21 that would be our angle we could take but it would be more  
22 ambiguous as when you hit that threshold or not. So -- and  
23 generally, people seem to like less ambiguity and more  
24 complete and understandable regulations and directions  
25 than --

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1 DR. LESLIE: That was Lisa London from the NRC  
2 staff that asked that question.

3 MR. GOLDSTON: And this is Sonny again. I  
4 agree with Dave and Lisa. That may require some additional  
5 thought as to how to put some enforceable criteria associated  
6 with that analysis that --

7 But to just say off the top of your head that  
8 you know what that is, you know, how the 15,000 years -- you  
9 look at a number and you say I know what that is, and I've got  
10 to stop that from happening. And I think it needs -- it takes  
11 some more thought than we've put into it so far.

12 DR. ESH: One thing that I don't think we did  
13 a great job as to date talking about was exactly what do these  
14 analyses represent and how should they be interpreted.

15 So the technical analyses and performance  
16 assessment are not an exact prediction of the future; they are  
17 an assessment to evaluate "what can happen, how likely is it,  
18 what are the consequences to inform the decision-making  
19 process," especially the regulatory decision-making process.

20 And so we understand, then -- certainly  
21 associated with it, you have to understand that whether it's  
22 regulating radiation risk or design of something more  
23 concrete like a building or a bridge, there's ways that are  
24 used to inform the decision makers and help make those  
25 decisions and that's what this process is about. It's to

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1 generate information. Of course, you want it to be as reliable  
2 information and hopefully a good estimate as possible, but  
3 there -- uncertainty associated with it in many aspects  
4 cannot be totally eliminated, that we have a lot of epistemic  
5 uncertainty -- epistemic and aleatory uncertainty. And what  
6 the process is about is trying to understand those  
7 uncertainties and make a decision. So this idea about the  
8 assessment and how well you need to know it and therefore what  
9 period of performance you should set -- the approach that had  
10 been taken in the past at NRC was, you know, this was a  
11 regulatory analysis, a tool to inform the decision-making  
12 process.

13 It's not a prediction of the future. We  
14 understand the uncertainties. We may constrain it and define  
15 it in certain ways to allow the process to work but that  
16 is -- should not be necessarily -- the uncertainty associated  
17 with the calculations should not be the determining factor in  
18 how you develop the regulatory approach. It should be a  
19 consideration but not the determining factor.

20 DR. LESLIE: Are there other comments on the  
21 phone, or questions?

22 THE OPERATOR: Yes, we have one from Linda  
23 Suttora.

24 MS. SUTTORA: Yeah. Hi. So what Sonny  
25 mentioned regarding DOE Order 435.1 is partially true. What

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1 is true is that we do all that now. In the revision of DOE  
2 Order 435.1, we have just reiterated -- you do a 1000-year  
3 period of compliance, a calculation on quantitative  
4 assessment, and you do a qualitative assessment to peak.

5 And we have said, you know, do a little bit more  
6 of a serious consideration within the first 10,000 years, but  
7 really the issue is peak. And the issue is, as Lisa mentioned,  
8 risk. And I'm a little bit concerned that, Dave, that you've  
9 been characterizing DOE as just looking at 1000 and then you  
10 quit because that's really not what we do.

11 We know we have longer-lived radionuclides and  
12 we look at the risk of those out to the future. Now, if we  
13 were going to do an analysis and we find that the peak dose  
14 is at 1500 years or 2000 years and is above 25 millirems, we  
15 are very, very conscious of making changes to the disposal.  
16 We might do a little bit deeper; we might have a more  
17 engineering facility.

18 If it's a peak dose at 12,000 years and it's plus  
19 or minus 100 millirems, we have to look at the risk. Where was  
20 our society 10,000 years ago, and where are we looking out in  
21 10,000 years, and plus or minus a hundred or two hundred  
22 millirem is not a significant as significant, though, to a  
23 member, a distant member of the future.

24 And based on the assumptions you put into the  
25 model, it can significantly change whether or not

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1 that -- those could be possibly realized. And so I think by  
2 characterizing DOE as up to 1000 years -- and that's it is a  
3 mischaracterization and grossly mischaracterized, and I'm a  
4 little bit concerned about NRC going out in the public realm  
5 and saying that about us.

6 That is not what we do. If we were to do an  
7 analysis and find a 5000-millirem dose at 10,000 years, we  
8 would make changes to our facility or what waste we put in  
9 there. If we were to find a hundred millirem at 10,000 years,  
10 we might say, gee, you know, where's the risk; it's not a risk;  
11 we're fine. We need to worry about the next thousand or so  
12 years really seriously with a quantitative assessment.

13 So, you know, let's move forward, but I just want  
14 to make sure that the public does not believe that 1000 years  
15 we cut it off and if we've got a peak dose over 25 millirem  
16 in 1000 and one year that DOE wouldn't do something. We take  
17 that very, very seriously.

18 DR. ESH: Thanks for the clarification, Linda.  
19 And I apologize if it came across as I mischaracterized your  
20 approach. I think I would characterize it, and correct me if  
21 I'm wrong, that for -- you have requirements for 1000 years;  
22 you do not have requirements for after 1000 years. Is that  
23 right?

24 MS. SUTTORA: We -- yeah, we have a requirement  
25 that the analysis be performed and that changes be made to a

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1 disposal facility if there was any chance at all of exceeding  
2 those performance assessments in what we consider a risk  
3 period of time. No, we wouldn't make changes if we had a  
4 hundred millirems at 10,000 years; you're right. We would  
5 probably say, "Boy, based on the assumptions we put in,  
6 there's a lot of uncertainty in there."

7 But if we were to come up with, as I said, a very  
8 high dose at 10,000 years, we would make changes. We'd  
9 probably put more engineer barriers. We might -- one of the  
10 things that we do at DOE is we will put groundwater barriers  
11 so that the flow can't access the disposed waste so we would  
12 put in a barrier wall in the groundwater prior to it accessing  
13 the facility so it has to go around the disposal.

14 We do all kinds of things, not just build a  
15 bigger concrete structure or put a little bit more rebar in  
16 there. We do a variety. Or as the state of South Carolina  
17 puts it, there's tools in the tool box to achieve lower  
18 groundwater access to the waste.

19 DR. ESH: What I was trying to distinguish, and  
20 maybe I'm wrong, is I wasn't aware of what your requirements  
21 were for after the thousand-year period. Because my  
22 experience on both being a reviewer on Saltstone and for the  
23 F-Tank Farm facility is both of those facilities were  
24 projected to be above 25 millirem after the 10,000-year  
25 period, and I didn't see what -- I wasn't able to see what DOE

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1 has done to try to mitigate those risks.

2 MS. SUTTORA: Well, actually, based on our  
3 assumptions and analyses, we didn't get a peak dose until  
4 after 10,000 years, and our peak dose, again, was so low that  
5 when you look at the risk and you look at things like the NAPA  
6 [or the National Academy of Public Administration] Report,  
7 how we should behave toward that risk at beyond 10,000  
8 years -- we didn't actually make any changes; however, the --

9 DOE's a little bit different than an NRC  
10 licensee in that all of our facilities also come under CERCLA  
11 [Comprehensive Environmental Response, Compensation, and  
12 Liability Act] and so we have a regulator and we have -- the  
13 regulators are EPA [or the US Environmental Protection  
14 Agency]and the state, depending upon whether it's RCRA or  
15 CERCLA or whatever. And these will be under institutional  
16 controls under those state regulatory regimes and so the  
17 state -- we talk to our state and our public.

18 And there was another question about -- and I  
19 think it was WCS -- about the public and communication with  
20 the public, and we go out and we teach a PA 101 class to the  
21 public. We have a very long, very detailed course that we  
22 teach so that members of the public that are interested can  
23 learn what PAs are, what they do, what uncertainties are built  
24 in and all that.

25 So, yeah, we may not have made a change if (a)

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1 our peak dose was way beyond ten thousand years and it was not  
2 a huge dose, and we look at the risk.

3 DR. LESLIE: Linda and Dave, thanks for coming.  
4 Don't go away.

5 Lisa London?

6 MS. LONDON: Yes. This is Lisa London with the  
7 Office of General Counsel for the NRC.

8 Linda, I'd like to just sort of interject a  
9 little bit because I think we went a little far afield when  
10 we sort of got into the Saltstone/F-Tank Farm discussion.  
11 It's probably not necessarily on point.

12 I think more importantly the question that Dave  
13 asked, which I'm not sure that I heard the answer to, and it's  
14 probably the answer I'm most interested in, and I think we can  
15 simplify it because I don't know, and you're in the best  
16 position to inform all of us, is what DOE does require after  
17 10,000 years.

18 It's not a matter of what you do and what you  
19 don't do because I understand DOE's self-regulating. You  
20 take a look at what the situation is and you sort of establish  
21 where your parameters are and what your activity's going to  
22 be. But I'm wondering does DOE require upon itself past that  
23 1000-year period anything sort of change -- whether your  
24 regulatory status, whether your Order 435.1, after 1000  
25 years, actually requires you to do anything.

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1 DR. ESH: Yeah. I think that's what I -- the  
2 distinction --

3 DR. LESLIE: Let her answer; let her answer.

4 DR. ESH: Linda?

5 MS. SUTTORA: Yes. The answer is that we  
6 require the site to continue the model all the way out to peak  
7 dose and then, depending upon the risk, a decision is made.  
8 If the peak dose is very, very far out in the future and not  
9 a high-risk dose and, again, that's how we get into this  
10 qualitative business where we do an analysis that we keep the  
11 same model and keep running it.

12 Just like everyone said, you can run a model  
13 forever. So we take that answer and we say, what is the risk?  
14 If it's considered a risk, meaning a high dose, and it's with  
15 10,000 or so years, and again we don't have a cutoff, then we,  
16 say, make modifications to the disposal facility.

17 We have an internal regulatory body that reviews  
18 the performance assessments. If the peak dose -- I've seen  
19 facilities change the design of the facility and/or the depth  
20 where the waste is disposed based on a peak dose beyond 1000  
21 years.

22 MS. LONDON: Okay. This is Lisa London from  
23 NRC Office of General Counsel again. That's very helpful,  
24 Linda. I really appreciate it because it really does sort of  
25 put us into a perspective.

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1 I think what I'm hearing from you is that  
2 post-1000 years, dependent on your risk and the site-specific  
3 characteristics, you guys have to make a decision, and you may  
4 go to a body that you've got internally, but there is no  
5 hardwired number in your DOE Order 435.1 that triggers an  
6 action, that you cannot actually vary from.

7 You have that authority and discretion within  
8 the agency to take back what you've learned, establish what  
9 you want to go do, you know, in the future, and what action  
10 you're going to take as a result of the information you've  
11 received, but it's more of a discretionary body that makes  
12 that decision, not so much the regulation that hard wires  
13 something and you're triggering it and you're done.

14 MS. SUTTORA: Right.

15 MS. LONDON: I think that's different -- 1000  
16 years' difference between the two agencies, and it may be a  
17 nature of who we're actually regulating --

18 MS. SUTTORA: It's possible that NRC should  
19 consider looking at risk rather than just absolute numbers  
20 because other agencies such as EPA with their CERCLA  
21 regulations, they look at risk and risk is a primary factor  
22 of why we're all here.

23 If something is a hundred millirem at 10,000  
24 years, do we really want to make major changes to a facility  
25 and incur millions or possibly billions of dollars to incur

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1 those -- to decrease a quasi-negligible risk? I mean, a  
2 hundred millirem at 10,000 years is negligible. And is NRC  
3 saying that they cannot possibly find a way to look at risk  
4 and can only look at absolute values? Then, I think the  
5 regulatory structure might need to be reviewed again.

6 DR. ESH: Thank you, Linda. Whether you choose  
7 a dose number or risk number, they're pretty much directly  
8 analogous. It's just a matter of what the number is. So a  
9 hundred millirem can be converted into a "one E to the minus  
10 whatever lifetime cancer fatality risk" just as well as 25  
11 can.

12 But I think I would summarize this -- as Linda  
13 says, DOE is smart about it when they do this sort of process  
14 and they try to put things in place to take some action when  
15 they need to. And where we were coming from is, well, what  
16 sort of requirement is associated with that process because  
17 this has to be done by our Agreement States and do we want the  
18 process to be just open to them to make those determinations,  
19 whereas right now DOE does it consistently, I believe, for all  
20 their facilities.

21 It's one entity making the same decision on  
22 different facilities over and over again. So where we're  
23 coming from is "what do we need to put in place to ensure that  
24 we would get a similar outcome?"

25 And it would be helpful, Linda, if you could put

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1 together some examples of facilities where you've had the  
2 issues that you've talked about, of the longer term impacts  
3 and how the facilities have been changed because that would  
4 be something we would want to consider if we adopted an  
5 approach similar to that.

6 MS. SUTTORA: Sure. I have two off the top of  
7 my head, Paducah and Nevada. So both of those facilities have  
8 changed their design based on a higher peak dose beyond 1000  
9 years.

10 DR. ESH: Okay.

11 DR. LESLIE: We'll probably follow up with you  
12 after the meeting so you can direct us to the exact resources  
13 so that the NRC staff can look at those in more detail.

14 Thank you, Linda. I'm going to go to Lisa, but  
15 before I do I want to say we're going to take a bathroom break  
16 right after we finish this discussion so -- and if it's going  
17 to continue, we can break it up and come back.

18 So, Lisa, if it's a comment relative to this  
19 recent discussion, let's do that; otherwise, let me finish  
20 with the phone. Is --

21 MS. EDWARDS: I can wait until you finish with  
22 the phone.

23 DR. LESLIE: Is there anyone else on the phone  
24 that has questions or comments at this time?

25 THE OPERATOR: Yes. I have a question from

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1 Roger Seitz.

2 MR. SEITZ: Hello, Dave. But -- just wanted to  
3 say I appreciate all the extended discussion on the time  
4 period of performance. I had a few points I wanted to make  
5 and you can have a chance to respond if you want to, but you  
6 mentioned NUREG-1573 and I think it is true that there was a  
7 lot of work that went into that and NRC staff recommended  
8 10,000 years, but that was also very controversial at that  
9 time as well. So -- and many of the same discussions went on.

10 So I just wanted to make sure that's clear, that  
11 there was a position out there but it was controversial at that  
12 time.

13 DR. ESH: Agreed.

14 MR. SEITZ: And can we go to Slide 20?

15 DR. LESLIE: We're pulling it up right now,  
16 Roger.

17 MR. SEITZ: I just wanted to ask on that  
18 right-hand side where you have DOE and South Carolina, would  
19 you put -- if you are disposing of -- or you're granting  
20 permission to dispose of waste under Part 20, would you put  
21 Part 20 on that right side as well with the thousand years?

22 DR. ESH: I would consider it, definitely. But  
23 part of the issue is that the material disposed under Part 20  
24 has the in-growth of the daughter products already reflected  
25 in the requirements that are set for it, so as you're -- as

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1 DOE does to, but as Part 20 has the flux requirement, for  
2 instance, through the cover of the material.

3 So it would probably end up on that branch of  
4 the diagram, though, if I was trying to put the domestic  
5 programs on this. And I guess -- let me go back one more  
6 slide, or a couple of slides.

7 DR. LESLIE: You're on Slide 18?

8 DR. ESH: Yeah. Slide 18 -- Part 20, the  
9 decommissioning criteria, I think, could possibly also be on  
10 that side of the diagram, the difference being -- and as we  
11 explained previously with respect to decommissioning is -- in  
12 the decommissioning analysis the radioactivity is in the  
13 environment and the assessment is usually done with a fairly  
14 conservative receptor, resident farmer-type of receptor, and  
15 they're basically exposed to direct exposure to the  
16 concentrations that are in the environment in that  
17 calculation.

18 So the likelihood that you have migration and  
19 cause of, say, a large impact through a groundwater pathway  
20 type of thing, or some delayed impact is greatly reduced in  
21 decommissioning because of the fact that the radioactivity is  
22 already in the environment and the receptors that are  
23 evaluated are looking at that radioactivity in the  
24 environment, the difference being in the disposal-type action  
25 where you put the material underground is you may have a

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1 significant delay between when the material reaches a  
2 receptor in the environment.

3 And that's what makes this problem a little  
4 different and a little more challenging.

5 MR. SEITZ: Yeah. And I think in the context  
6 of this comment it's focusing on things under Part 20 that  
7 would be the disposal action under Part 20, or where you grant  
8 permission for disposal under Part 20.

9 But I would also -- I think that how you  
10 interpret Part 20 for some of those exemptions or permission  
11 for disposal might be a good analogy for the previous  
12 discussion where, how does the NRC approach a case where there  
13 may be a higher dose after 1000 years under Part 20?

14 DR. ESH: Yeah. It's been a while since I've  
15 looked at that but I've definitely dealt with it on a couple  
16 of projects I worked on in the past. So I can pull that  
17 information forward and definitely commit to re-look at it.

18 I know we had some public comments that asked  
19 that associated with West Valley and also I think with  
20 development of the LTR [License Termination Rule]. And we had  
21 responses to those public comments. And they were along the  
22 lines of the answer that I gave previously which was, in most  
23 cases, because of the way the analysis is done you've  
24 captured -- usually the risk is highest early on in the  
25 analysis and it drops off, not that you have some sort of delay

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1 with very little or zero risk and then the risk builds in over  
2 time.

3 And then you're well aware of that that the  
4 responses that you get for different problems in different  
5 systems can be quite a bit different temporally.

6 MR. SEITZ: Right. And -- well, I know there's  
7 cases where there's been permission for DU-contaminated  
8 materials, so that would be something where the risk can  
9 potentially increase over time.

10 DR. ESH: Yeah. I would have to check but I  
11 believe those concentrations and quantities in most respects  
12 were fairly limited and that comes into play.

13 MR. SEITZ: Right. Now, I think -- that may be  
14 an interesting comparison, though, how you would deal with the  
15 question of what happens after 1000 years under Part 20 as a  
16 point of reference.

17 DR. ESH: Sure.

18 MR. SEITZ: Okay. You brought up some good  
19 examples from internationally and I wanted to mention one  
20 thing just to keep in mind, and I think you're aware of this,  
21 when we look at comparisons with approaches  
22 internationally -- and I appreciate you didn't put in  
23 specific time frames.

24 And you have to be very careful when you do that  
25 because having a time frame is one thing but there's a lot of

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1 other factors that go into it and different countries allow  
2 different things in terms of institutional controls, in terms  
3 of allowing probabilities, consideration of probabilities, so  
4 that's just a general comment.

5 DR. ESH: That's a good comment and that's  
6 exactly why I didn't try to make an international table of  
7 numbers similar to the domestic one because they -- it was  
8 amazing when you analyzed all the different countries and what  
9 they do how some small, subtle differences could be very  
10 important.

11 And there are things, like the things you  
12 mentioned, and some of the previous things I mentioned, that  
13 there are very careful choices of words and other requirements  
14 that are put in place that -- they're all trying to solve a  
15 similar problem but they solve it in much different ways.

16 MR. SEITZ: And one thing -- when you talk about  
17 how they distinguish between long-lived, I think it's  
18 important to point out that when you say, Long-lived waste  
19 needs to be, for example, disposed in a deep repository in a  
20 different country, that doesn't mean they don't allow some  
21 quantities of long-lived radionuclides in near-surface  
22 disposal facilities.

23 DR. ESH: Yeah. And that -- I agree with you  
24 and that's a good comment, Roger, that many times they'll  
25 allow some limited concentration but those concentrations,

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1 I'd say, varied over maybe three orders of magnitude in terms  
2 of like long-lived alpha concentrations. They were pretty  
3 variable over -- from country to country, what they would  
4 effectively allow in near-surface disposal.

5 MR. SEITZ: Okay. And a specific example that  
6 I think is interesting and caveated with the previous  
7 discussion, the way they interpret it isn't the same way we  
8 would interpret necessarily, but Sweden -- in their rules,  
9 they actually specify a time frame of 1000 years when you look  
10 at dose and risk as quantitative values.

11 Then they specify the longer time frame after  
12 that where you look at dose, risk and any other number of  
13 factors to make decisions beyond that time frame. And they  
14 specifically mentioned something to the effect of fluxes or  
15 flows of contaminants in the natural environment.

16 DR. ESH: Yeah. Maybe I put them in the wrong  
17 box but I thought that was Finland.

18 MR. SEITZ: They actually -- it's very specific  
19 in their regulation how they describe it.

20 DR. ESH: Yeah. I think it was both Sweden and  
21 Finland that had elements of that approach, probably because  
22 they're closely associated with each other geographically  
23 too, but they also had, as we'd talked about, concentration  
24 limits or quantity and concentration limits, where they made  
25 that demarcation between whether you can even analyze the

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1 problem to begin with or not.

2 MR. SEITZ: Right.

3 DR. ESH: If you didn't meet that first  
4 screening criteria, basically, then you were pushed into  
5 deeper disposal.

6 MR. SEITZ: Yeah. And I'm not trying to say  
7 that that's a justification for 1000 years because there's a  
8 lot of other factors involved but in terms of the thousand  
9 years itself, I -- from my personal perspective I tend to look  
10 at recommendations from the ICRP, the IAEA, and the ICRP is  
11 pretty clear where they say dose and risk, as measures of  
12 health detriment, cannot be forecast with any certainty  
13 beyond several hundred years.

14 In my mind maybe that's something you can use  
15 as a comparison with reasonably foreseeable in terms of  
16 reasonably foreseeable impacts on human health -- so that, if  
17 you think several hundred years, that pushes you more towards  
18 that thousand-year reasonably foreseeable time frame.

19 DR. ESH: Yeah. That's a good comment. Also,  
20 I think, looking at the IAEA -- it's in an appendix of one  
21 report -- it might be report DS-354. You probably know better  
22 than I but they have that chart of the different waste classes  
23 and how they -- one example of how you could classify the  
24 waste.

25 And if you look at the boundary between what they

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1 call low-level waste and intermediate-level waste, that  
2 boundary, I think, was like 400 Becquerel's per gram or  
3 kilogram --

4 MR. SEITZ: It's conveniently close to true.

5 DR. ESH: There was a boundary there where  
6 basically if you looked at something like depleted uranium it  
7 would be well into the intermediate-level waste class rather  
8 than the low-level waste class. And the IAEA, as I'm aware,  
9 says intermediate-level waste should generally be deeper  
10 disposal not near-surface disposal.

11 MR. SEITZ: But I think they also have a  
12 separate category of naturally occurring radioactive  
13 materials, and that one, it's very gray how that should be  
14 disposed of.

15 DR. ESH: Yeah. Overall, I think there  
16 philosophy is one that you need to develop your waste  
17 classification system and your associated requirements  
18 consistent with the waste characteristics, as we've heard  
19 from some of our stakeholders here.

20 And I think that's smart to do if we can work  
21 it out where we can achieve something that works and has a  
22 reasonable consensus to it.

23 DR. LESLIE: Are there any other comments,  
24 Roger, or can I move on to the next person?

25 MR. SEITZ: No, those are my comments.

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1 DR. LESLIE: Thank you. Anyone else on the  
2 phone?

3 THE OPERATOR: Yes, we have one from John  
4 Greeves.

5 MR. GREEVES: All right. Can you hear me now?

6 DR. LESLIE: Yes.

7 MR. GREEVES: Okay. I'll try and be succinct.  
8 I've got three comments that are related to what Dave  
9 presented. I think it's agreed that people have bought into  
10 a two-tiered concept. If you buy into a two-tiered concept,  
11 I think you have to define those two tiers.

12 So to help do that, the first comment I would  
13 make is the highest risk to society occurs [phone cuts out],  
14 so I don't think there's a debate about that. So there's  
15 something nice about defining that compliance period as 1000  
16 years. It covers cesium and the great majority of the  
17 radionuclides are disposed of at [phone cuts out].

18 Second point. The second tier -- Dave raised  
19 the question how do you characterize that? I think you  
20 characterize it as a dose criterion. I think you really do  
21 need a criterion. It keeps some uniformity and a number 100  
22 millirem, 500 millirem ... something like that would help define  
23 what the metric is for that. Also, I think you have to define  
24 that you're looking at a critical group concept in terms of  
25 the receptor.

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1           The third point, Dave talked about methods  
2 about -- in terms of screening under Section 61.55 and a more  
3 general approach under Section 61.58. My comment is you need  
4 an approach in the regulation that allows a weighted  
5 acceptance criterion to be developed and that's not an  
6 exemption.

7           The NRC currently uses Section 61.58 as an  
8 exemption. I think earlier speakers have noted [phone cuts  
9 out] exemption, but the rule needs to have a provision built  
10 into it that allows us to invoke these risk-informed  
11 procedures that we have developed and use that as the  
12 acceptance criteria and it's clearly -- it's not an exemption  
13 approach.

14           So I'll stop with those three points. Thank  
15 you.

16           DR. LESLIE: John, thanks for your comments.  
17 For the record, are you representing yourself or are you  
18 representing --

19           MR. GREEVES: Myself.

20           DR. LESLIE: Okay. We're going to need to take  
21 a break. There are so many people dancing in the back of the  
22 room at this point so I think, John, we're going to come back  
23 and address your issue and make sure -- I've jotted the things  
24 down. But we'll get back to you. We're going to take a  
25 15-minute break and we'll come back and wrap up the period of

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1 performance. But sorry about that, John. I -- literally,  
2 everyone is walking out -- running out the door as we speak.

3 MR. GREEVES: That's fine. I appreciate being  
4 able to make the points.

5 DR. LESLIE: All right. So everyone on the  
6 phone line, we'll stop right back up at around 11:15. Thank  
7 you for your patience.

8 (Whereupon, a short break was held.)

9 DR. LESLIE: A little bit about the logistics  
10 before we get back into the technical meeting. I probably  
11 went a little too long before our break but not we're going  
12 to talk a little bit about lunch. Rather than waiting till  
13 one o'clock, we're going to break at 12:30 so if Dave's still  
14 blabbing his mouth, we're going to make him break at 12:30.

15 And we want to encourage as much discussion as  
16 possible but they are serving lunch upstairs if you want to  
17 and the menu's out there; it's \$12. There's also a little café  
18 down this hall that you can pick up something lighter as well.  
19 And we're currently planning only a one-hour break for lunch.

20 But before you move on to waste acceptance -- I  
21 know you want to move on to waste acceptance -- why don't I  
22 get the people back on the phone.

23 And, John Greeves, I know you had a bunch of  
24 points, or three points that you made, and I appreciate your  
25 willingness to allow us to go on to break. Was there a

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1 particular thing that you wanted Dave to respond to? What I  
2 heard were a couple -- three points with positions and, I  
3 think, bases. But was there any additional follow-up that you  
4 were seeking, John?

5 (No response.)

6 DR. LESLIE: Is the phone line on?

7 THE OPERATOR: Yes, we're here.

8 DR. LESLIE: Yeah, I'm trying to find out if  
9 John Greeves is still -- has any additional comments.

10 THE OPERATOR: Okay. Let me open his line real  
11 quick here. One moment.

12 John Greeves, your line is open.

13 MR. GREEVES: Okay. Thank you. Thanks for  
14 those comments, and I've provided my comments for the record.  
15 I tried to be clear on what the three points are, and the only  
16 feedback I would enjoy is Dave saying he agrees with me, but  
17 he doesn't really need to do that.

18 I think the point is to get input and I'm  
19 satisfied with the clarity of my input. I'd respond if Dave  
20 or others have questions on what's behind my statements.

21 DR. ESH: Okay. I heard his comments and I  
22 understood them. They're good. Yeah, I don't have any  
23 follow-up questions.

24 DR. LESLIE: Right. Well, was there anyone  
25 else on the phone that still wanted to talk about the period

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1 of performance?

2 THE OPERATOR: We do have a question from Arjun.

3 DR. LESLIE: Okay. Go ahead.

4 DR. MAKHIJANI: Hi. Thank you very much for  
5 taking my question. During the --

6 DR. LESLIE: Can you identify yourself and --

7 DR. MAKHIJANI: Yeah. This is Arjun Makhijani  
8 from the Institute for Energy and Environmental Research [or  
9 IEER]. During the depleted uranium sort of public  
10 consultation, I thought the NRC staff person, Dr. Esh, as well  
11 as the NRC invited experts agreed that it wasn't even sensible  
12 to do performance assessments for shallow-land burial for  
13 10,000 years.

14 And yet I find that it is still on the table.  
15 You know, 10,000 years ago we had the Ice Ages. And the oceans  
16 were over Utah 12,000 years ago. And so I don't understand  
17 why these ideas are still on the table for shallow-land burial  
18 at site-specific. It doesn't make any scientific sense.

19 We should limit shallow-land burial to less than  
20 1000 years. The ICRP has said you can't even sensibly  
21 calculate those end risks so I'd like some comment on why we're  
22 talking about things that are not even scientifically  
23 sensible for shallow-land burial.

24 DR. LESLIE: Thank you, Arjun.

25 DR. ESH: Thanks for the comment, Arjun. What

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1 I would add is that I don't think that I necessarily stated  
2 the opinion that the analysis of near-surface disposal is  
3 non-sensible or not practical, but I do acknowledge that as  
4 you go out to longer times it becomes very challenging, a high  
5 amount of complexity, and therefore you would probably expect  
6 a great amount of expense associated with doing credible,  
7 technical analysis.

8 So this process is about trying to define where  
9 we think that boundary is and what requirements need to be put  
10 in place to mitigate the risk. And as you indicated, and I  
11 don't necessarily disagree with, one approach to do that is  
12 to limit the amount of material that you take in the near  
13 surface and ensure that where you place the material in the  
14 waste management system is consistent with its hazard. And  
15 I think, hopefully, in this rulemaking process, we can do  
16 that.

17 DR. MAKHIJANI: Well, no, this didn't answer my  
18 question, really.

19 You know, Dr. Esh, it is on the record, in the  
20 transcript, that 10,000-year near-surface assessments  
21 were -- I believe I'm remembering the correct  
22 word -- "silliness." And then we agreed that we wouldn't use  
23 silliness in a regulatory context, but it is silliness.

24 DR. ESH: Okay.

25 DR. MAKHIJANI: You know, if the peak dose is

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1 beyond 1000 years, it should just bump it into deep disposal.

2 DR. ESH: Yes, I think you're --

3 DR. MAKHIJANI: I don't think --

4 DR. ESH: I think you're mischaracterizing that  
5 discussion.

6 DR. MAKHIJANI: It's in the record. We can  
7 visit it.

8 DR. ESH: Yes, that's fine. And what I'll say  
9 is that the discussion was we were talking about the analysis  
10 that the staff had done to look at the effects of climate  
11 conditions on different sites. And what we had done in that  
12 analysis is we had taken the uncertainty and represented it  
13 as pure, aleatory uncertainty across the United States.

14 What that does is it has the effect of increasing  
15 the variance associated with the output that you generate  
16 because what you're basically saying is dry conditions are  
17 going to persist forever or wet conditions are going to  
18 persist forever. So when it was characterized as silly, it  
19 was that persistence of the conditions. The persistence of  
20 the conditions is conservative, though, in respect to real  
21 world conditions because real world conditions vary from wet  
22 to dry, et cetera.

23 So when you're looking at, say, radon doses or  
24 groundwater doses they are more towards the central tendency  
25 when you do a more realistic representation of the

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1 uncertainty. That's the context that was done, not that  
2 performance assessment and a long-term performance assessment  
3 is silly; that's a mischaracterization.

4 DR. MAKHIJANI: Oh, for shallow-land burial.  
5 I will pick it up and look at it again. You might be right.  
6 You know, my memory of it is that we were talking about things  
7 like zero erosion over a million years because that was part  
8 of the basis on which the performance assessments were done,  
9 and so, you know, the way you're characterizing it with wet  
10 and dry alternate, I think it will go toward more the central  
11 tendencies.

12 Certainly, that's not going to be compatible  
13 with zero erosion. And the calculation that was done was  
14 certainly not a conservative calculation at all.

15 DR. ESH: Well, the zero erosion aspect is  
16 different and I agree with you that the analysis did assume  
17 that the facility would be designed to meet the 61.44  
18 stability requirements which is where erosion comes into  
19 play, basically that we wouldn't license a facility that  
20 couldn't meet the requirements. So --

21 DR. MAKHIJANI: And that you could predict  
22 erosion for a million years?

23 DR. ESH: Well --

24 DR. MAKHIJANI: Is that sensible?

25 DR. ESH: I don't think you can predict erosion

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1 for a million years but you can certainly bound erosion and  
2 you can certainly put in --

3 DR. MAKHIJANI: For a million years?

4 DR. ESH: You can certainly evaluate -- I mean  
5 performance assessment is not about ensuring with a 100  
6 percent certainty --

7 DR. MAKHIJANI: I understand.

8 DR. ESH: -- that you will have zero erosion.  
9 It's about associating what the -- or generating what you  
10 think the release rates may be if you have that scenario. So,  
11 you know, the performance assessment will look at ranges of  
12 erosion rates consistent with modern-day estimates and  
13 projected future climate states. That's how the performance  
14 assessment should work.

15 Those erosion rates may be large and may have  
16 high uncertainty associated with them but that doesn't mean  
17 you can't do an assessment of what you think the projected  
18 erosion rates may be with a range of uncertainty associated  
19 with them.

20 DR. MAKHIJANI: Okay. I won't take more of  
21 your time. I'll just say two things: One is I think you  
22 should talk to some climate scientists who are struggling to  
23 project for 500 years and finding they're repeatedly wrong;  
24 and, secondly, I would just put forward my own opinion that  
25 if, in shallow-land burial, peak doses are beyond 1000 years,

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1 shallow-land burial should be abandoned.

2 DR. LESLIE: Thank you, Arjun.

3 DR. MAKHIJANI: Sure. You're welcome, Bret.

4 DR. LESLIE: Are there any other comments or  
5 questions on the phone line?

6 THE OPERATOR: Not at this time.

7 DR. LESLIE: Okay. I'll give one last chance,  
8 since everyone's refreshed here in the room, to ask some  
9 additional questions, and I see Lisa Edwards making her way  
10 to the mike.

11 MS. EDWARDS: Lisa Edwards with EPRI. I just  
12 want to go on the record with, what is sacred about 25  
13 millirem? And the context of this statement is that when we  
14 say if the calculated dose is less than 25 millirem, we're  
15 saying it's safe, which implies that at 26 millirem, it would  
16 not be safe. And I understand, no matter what number you pick,  
17 you can make that argument.

18 But with the most recent UNSCEAR [United Nation  
19 Scientific Committee on the Effects of Atomic Radiation]  
20 numbers, putting population dose -- average population dose,  
21 at 600 millirem if you include medical treatments,  
22 background -- you know, in the 2- to 300 millirem kind-  
23 of-range in the United States, it makes the 25 millirem sound  
24 different today than it did 30 years ago when there weren't  
25 very many medical procedures or people didn't understand what

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1 kind of dose they were receiving from those types of  
2 procedures.

3 So if you consider the total argument of risk  
4 avoidance, the risk avoidance to me is better in a disposal  
5 environment than in a non-disposal environment and the 25  
6 millirem obviously captures what we consider safe disposal  
7 because I don't think anyone in this room wants anything other  
8 than safe disposal. So revisiting the 25 millirem could  
9 change the picture dramatically.

10 DR. ESH: Yeah. This is Dave. I wouldn't  
11 disagree that it could change the picture. Within the scope  
12 of this rulemaking -- it was a limited-scope rulemaking where  
13 if we feel we have a challenge getting agreement about the  
14 framework associated with the analysis and the analysis  
15 period and the appropriateness of it, I think if we started  
16 also looking at dose limits, it would amplify that certainly.

17 Those sorts of things we, I think, would be part  
18 of a future, more comprehensive evaluation of the rule if, in  
19 fact, we did that -- resources available. So there are lots  
20 of things like that you could consider within the limited  
21 scope. Ideally we should have been well on our way to being  
22 done at this point so -- but, you know, we aren't, and we're  
23 continuing to work at it, continuing to get feedback.

24 And so our ability to consider some things that  
25 we think are somewhat limited within the scope of this

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1 rulemaking activity. We had our initial direction from the  
2 Commission. We got revised direction from the Commission.  
3 We're going to try to stay within that scope as much as we can  
4 and not deviate from it.

5 DR. LESLIE: Okay. Seeing no further  
6 questions in the room, I'll let Dave -- oh, just in time for  
7 the screen to go blank. Move on to the waste acceptance  
8 portion of his talk. And for those of you listening in on the  
9 phone, we're starting on Slide 24.

10 DR. ESH: All right. So now we'll move on to  
11 waste acceptance criteria, starting off with the direction.  
12 Basically, the Commission directed the staff to consider  
13 flexibility in establishing the site-specific waste  
14 acceptance criteria based on the results of the various  
15 analyses that you perform.

16 And the -- well, let's go back here. The  
17 primary direction, my interpretation of it, is that they -- in  
18 our initial rulemaking, our draft, what we were going to do  
19 was maintain the waste classification tables as directed by  
20 the Commission, then require a performance assessment for  
21 Section 61.44 and then an intruder assessment for Section  
22 61.42.

23 In the direction the Commission gave us, what  
24 we're talking about now, they basically said to change that  
25 to an "or" approach so you can choose to use the tables or do

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1 a site-specific -- develop site-specific waste acceptance  
2 criteria. Or at least that's what we'd like to discuss with  
3 the stakeholders. Should it be an "or?" Should it be an "and?"  
4 Do you have other perspectives?

5 But the way this works is the context -- there  
6 is a general WAC specified in Sections 61.58 through 57 and  
7 61.58 currently allows the request for alternative waste  
8 classification and we've talked some about that, about using  
9 exemptions and the likelihood of that occurring.

10 It is compatibility, health and safety which  
11 means that state adoption is not required and as Dan Shrum  
12 pointed out, for instance, in Utah's case, they don't have an  
13 equivalent Section 61.58. So in this rulemaking effort,  
14 though, our questions would be should we do a general WAC only,  
15 which would be analogous to kind of what we have now; should  
16 it be a general or site-specific so that people can choose  
17 which approach they want to use; should it be a site-specific  
18 only; or maybe is there something else that we haven't thought  
19 of -- and the pros and cons associated with those different  
20 approaches.

21 Now, what I would add with respect to waste  
22 acceptance criteria is I believe they're going to be some  
23 technical challenges associated with adopting that approach  
24 which may not have been talked about in these meetings yet and  
25 stakeholders would want to put some thought into.

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1           So what requirements should NRC specify  
2 associated with waste acceptance criteria? Here's some that  
3 we thought of -- one, consistency with the technical analyses  
4 that are specified in Section 61.13, which gives the technical  
5 requirements associated with the analyses.

6           We have waste characteristics in our regulation  
7 right now. There's minimum characteristics specified in  
8 Section 61.56(a). There are stability requirements. That's  
9 specified in Section 61.56(b). The idea would be what  
10 requirements should be open to evaluation by analyses and  
11 development on the WAC and what requirements should not be  
12 open to evaluation and analyses.

13           Basically, say you had -- I'll give you an  
14 example. Say, we'll talk about chelating agents. So should  
15 you be able to assess the effect of chelating agents within  
16 your performance assessment, or should NRC have, as they do  
17 now, just say you can't put chelating agents in a disposal  
18 facility. It causes problems. You're not going to have the  
19 science and technology to adequately assess it.

20           We'll just put it in there as a general waste  
21 acceptance criterion, and then your specific waste acceptance  
22 criteria, in terms of concentrations of waste that you can  
23 take or waste forms, those sorts of things, you develop with  
24 your analyses. We also have operational requirements right  
25 now, segregation requirements in Section 61.52(a) and

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1 intruder protection requirements in Section 61.52(b).

2 Others such as criticality, labeling, those  
3 sort of things. You know, the waste acceptance criteria, you  
4 can make it pretty open and therefore you're kind of  
5 evaluating everything or the regulator can provide things  
6 that you need to meet first and then you do your analyses to  
7 develop the specific concentrations of all the isotopes you  
8 take.

9 So we're interested in talking about pros and  
10 cons associated with that. And then, also with waste  
11 acceptance criteria we have some existing guidance documents  
12 that may be relevant. And what guidance would we need to  
13 develop or revise, and why? We have the technical position  
14 on waste classification, the waste form technical position,  
15 the technical position on concentration averaging and  
16 encapsulation, and any new guidance -- so what acceptable  
17 approaches for analyses.

18 We can envision that, if we're going to the  
19 site-specific WAC [waste acceptance criteria] approach we  
20 probably are going to need quite a bit of guidance as to what  
21 the staff thinks of a way of doing it -- and that's our initial  
22 thoughts or that's probably appropriate in guidance and not  
23 in regulation because we're probably not the smartest guys in  
24 the room and there may be people in the Agreement States that  
25 actually have to do this work that have better ideas about how

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1 they should do it in their specific applications. But we're  
2 envisioning that we'd need to develop some new guidance  
3 associated with development of a site-specific waste  
4 acceptance criteria.

5 So the feedback we're seeking is on adding the  
6 flexibility to establish these site-specific waste acceptance  
7 criteria, based on the analyses for the performance  
8 assessment and intruder assessment. We did get some support  
9 from stakeholders for this at the March 2 public meeting.  
10 Okay. That's the end of that.

11 So I guess we'll stop -- break at this point and  
12 talk about waste acceptance criteria, what thoughts  
13 stakeholders may have on it -- what you think should be part  
14 of that approach; at the high level what form should it  
15 take -- how much of it should be open to the site-specific  
16 part? Should there be things that should be constrained by  
17 the regulator as in the example I gave, say, with respect to  
18 chelating agents?

19 And then, specifically, what sort of guidance  
20 do you think you would need? What aspects of the process or  
21 approach would you need guidance on or would benefit from  
22 having guidance on?

23 And we did, I should indicate, have a discussion  
24 with DOE because they use a site-specific waste acceptance  
25 criteria approach for their facilities and it was very

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1 helpful. They had a lot of insights about how they do the  
2 process, a lot of good ideas, and they've been doing it for  
3 some time. So their approach is pretty refined as they've  
4 tweaked it over the years to get it right basically, so -- and  
5 we can talk about that some too in this discussion.

6 DR. LESLIE: Dave, thanks for teeing up the  
7 topic. I want to thank you for laying things out. I'm not  
8 sure how many people have questions or comments but one of the  
9 things that Andrew Carrera reminded me is, make sure you ask  
10 why.

11 So if you want to provide some feedback to Dave  
12 on a particular approach, try to remember to explain why  
13 that's an appropriate approach or the disadvantages of a  
14 different approach. That helps the staff to kind of formulate  
15 the framework for -- for instance, one of the things Dave  
16 talked about it, you know, maybe this is best placed in  
17 guidance.

18 Well, maybe someone thinks it's best placed in  
19 regulations. So, again, to con -- when he says pros and cons,  
20 what he's really asking for is the input that allows him to  
21 flesh out the topic.

22 So are there any questions, comments, here on  
23 the site-specific WAC? I'll be really annoying. What if NRC  
24 just adopted exactly what DOE was doing? Would that be  
25 acceptable to folks?

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1 DR. ESH: Well, let me tell you a couple of  
2 things that DOE does and then maybe you'd know whether -- a  
3 couple of things they do -- so, one, the disposal site  
4 operator generates the WAC and then the generators have to  
5 meet. And the WAC that the disposal site operator generates  
6 considers a very big list of radionuclides as to what could  
7 potentially go into their facility and they generate the  
8 concentrations of those isotopes that could into their  
9 facility.

10 Then, the generator has to demonstrate that they  
11 meet the WAC. Well, that's kind of where the rubber hits the  
12 road of how do they demonstrate that they've met the WAC,  
13 especially for a lot of isotopes that they may not measure  
14 routinely that if they were at certain concentrations could  
15 cause risk from their facility.

16 The way it's done now, as we understood, and  
17 maybe DOE can chime-in later in this discussion, if they're  
18 still on, is basically the disposal site operator sets quality  
19 assurance requirements in place that is how they demonstrate  
20 the material that they're going to accept is going to meet the  
21 criteria. Then the waste generators have to demonstrate how  
22 they meet those quality assurance requirements for the waste  
23 going to the disposal facility.

24 Then there are audits done for the disposal site  
25 operator to verify that the generators are, in fact, meeting

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1 the quality assurance requirements. So in this case, if we  
2 put it into our world, the commercial world, say Dan Shrum or  
3 Rod [Baltzer] and WCS, they would generate the quality  
4 assurance requirements associated with their WAC for people  
5 that want to send them waste, and they would do auditing of  
6 those generators to see that they are in fact, meeting the  
7 requirements associated with that WAC.

8 Now, you can imagine that what you put in those  
9 quality assurance requirements in terms of meeting waste  
10 acceptance criteria could be very burdensome or not so  
11 burdensome. There could be a big impact or a little impact.  
12 So that's something for you, as stakeholders, to think about  
13 as you move to this "more flexible approach." There may be  
14 more heavy lifting that comes with that for the disposal site  
15 operators, the generators, or the Agreement States who are  
16 going to maybe be doing an independent check of both parties,  
17 whether they're meeting their obligations. So that's a  
18 minute discussion of kind of how their process works and some  
19 of the things you might want to think about.

20 DR. LESLIE: I've not seen --

21 (Pause.)

22 DR. LESLIE: I turned myself off. Well, and in  
23 that period of time I've got someone who actually wants to make  
24 a comment.

25 MR. SHRUM: I'll be very quick. This is Dan

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1 Shrum with Energy Solutions. You cautioned us on your  
2 slide -- I believe it's Slide 26 what requirements, if any,  
3 should NRC specify, and if you would want to contemplate a  
4 waste acceptance criteria for in the future I think any  
5 assumption that was used in the development of the tables in  
6 Section 61.55, Tables 1 and 2, is something that, if you wanted  
7 to go with a WAC, you could challenge those assumptions on how  
8 you developed those tables.

9 I think that's just a fair, broad brush because  
10 there are a series of assumptions that were put in when that  
11 was done and I think any disposal operator should be able to  
12 challenge those assumptions and change and develop a WAC based  
13 off of challenging and proving that those assumptions are not  
14 valid for this specific site. Okay?

15 DR. LESLIE: Okay. Dan, I'm not sure I  
16 understand. Is it a flexibility issue or -- I'm not seeing  
17 the nexus between the tables and --

18 MR. SHRUM: The tables were developed and have  
19 a bounding effect on what the different facilities can take.

20 DR. LESLIE: Right.

21 MR. SHRUM: But the tables were developed based  
22 off of a series of assumptions that were put into the  
23 development of those tables. For example, I may be wrong on  
24 this but I think they were developed for a humid, eastern coast  
25 disposal site which, you know -- ought we be able to challenge

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1 that assumption on what that -- you know, what the table say  
2 if you're not a humid east coast disposal site and you have  
3 different characteristics of your own site that would allow  
4 flexibility in the tables. Okay?

5 DR. ESH: Yeah, the question becomes how  
6 much -- what -- you gave a good example about, say, the  
7 climatic conditions but it also may be things like the  
8 scenario or receptor characteristics whether those should be  
9 open to site-specific analysis. I think certainly things  
10 like, say, consumption rates and ingestion rates and those  
11 sorts of things should be consistent with regional practices  
12 for your disposal facility.

13 But, then, when you get to the high level of,  
14 well, assumptions about disturbance or activities, when does  
15 that become something that the regulator should contain that  
16 they think they've fixed a reasonably conservative scenario  
17 for everybody to consider and when do you allow that open to  
18 interpretation?

19 That's something that we'd like feedback on in  
20 this process, whether -- how much flexibility should you  
21 afford? Are there things that should not be afforded  
22 flexibility, and why, as Bret will hopefully remind you.

23 DR. LESLIE: Okay. We've got at least one more  
24 comment here.

25 MS. EDWARDS: This is Lisa Edwards with EPRI.

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1 David, you'd have to go back into the transcripts but I think  
2 that was discussed to some extent in the February meeting. I  
3 don't know if it was 2010 or 2011 now, but whatever that  
4 February meeting was with the panel discussion, and I think  
5 what was suggested, at least by one party at that meeting, was  
6 that there could be multiple disturbances that were  
7 envisioned or potential intrusion scenarios. And that they  
8 with that defined set of potential intrusion scenarios, the  
9 states would determine which of those applied to their site  
10 because in some cases they might all apply; in other cases,  
11 only a subset of them would apply. It would be based upon a  
12 regional decision making or site-specific decision making.

13 DR. ESH: Yeah. And I would note that if  
14 development and the waste acceptance criteria are tied to,  
15 say, an intruder assessment, some international programs  
16 allow consideration of probability in that development,  
17 whereas others do not, so some will specify a scenario,  
18 essentially what NRC did in the original Part 61, whereas  
19 other will afford flexibility to consider probabilities in  
20 generating those scenarios.

21 The slippery slope you get on, and I think it  
22 was touched on by Arjun to some degree, is that some types of  
23 uncertainties are not readily quantifiable, or in some  
24 opinions are not readily quantifiable. And certainly the  
25 future societal uncertainty is one that is very highly

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1 uncertain and, by some people's arguments, not readily  
2 quantifiable. So --

3 DR. LESLIE: Okay. I'm going to turn to the  
4 phone to see if there are any comments.

5 THE OPERATOR: Yes, our first one is from John  
6 Greeves.

7 MR. GREEVES: Okay. Can you hear me?

8 DR. LESLIE: Yes, we can.

9 MR. GREEVES: Okay. I see Slide 26 and I wanted  
10 to talk to Slide 26 and 27. Your first question was what  
11 characteristics should be considered. You mentioned the one  
12 that's on the slide.

13 All of these characteristics were based on the  
14 way work was done back in the '80s. They're very specific.  
15 They're not risk-informed. And my comment is that if you go  
16 to a waste acceptance criterion you wouldn't be setting aside  
17 minimum waste characteristics or segregation requirements.  
18 That would all be overwritten by the performance assessment,  
19 the risk-informed performance assessment, and waste  
20 acceptance criteria.

21 If you'll turn to Slide 27, you raise the  
22 question of what guidance is needed. You list four things  
23 here and I would reject the first three. They're all based  
24 on a straining approach which is not what a waste acceptance  
25 criteria approach is. The third one says, new guidance, which

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1 I would subscribe to, and I would say the starting point, a  
2 good starting point, would be NUREG-1854, the NRC staff  
3 guidance on activities related to the Department of Energy  
4 waste determination.

5 Both the staff and DOE have a body of experience  
6 in that particular area that I think goes a long way towards  
7 the development of the type of guidance that would be needed  
8 for waste acceptance criteria. So I'll stop with that.

9 DR. ESH: John, what I interpret your part on  
10 Slide 26 about the need for no minimum characteristics that  
11 everything is technically analyzable -- is that basically  
12 what you're saying? Because I think the reason for specifying  
13 minimum characteristics is if you think there are some things  
14 that should be avoided and shouldn't be part of the  
15 assessment, whether it's that the technology isn't there or  
16 it would be a burden on both a disposal facility operator and  
17 an Agreement State regulator to try to evaluate some of those  
18 technical things.

19 You can manage them through a requirement, a  
20 minimum characteristic, or you can try to evaluate them  
21 through analyses. Are you saying that everything should be  
22 able to be evaluated through analyses?

23 MR. GREEVES: I'm finding this difficult to do  
24 over the telephone, Dave. And I -- the point I'm trying to  
25 make is these original parts of Part 61 were basically a

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1 self-suspenders approach and if you go to a waste acceptance  
2 criteria, you shouldn't be locked into some of the specificity  
3 that was in the original Part 61. I think it would only --

4 DR. LESLIE: Okay, John.

5 Are there other comments on the phone?

6 THE OPERATOR: Yes. The next is from Sonny  
7 Goldston.

8 MR. GOLDSTON: Okay. This is Sonny Goldston  
9 with the EFCOG again. John Greeves took the words right out  
10 of my mouth. I agree with John -- everything John said.

11 If you're doing your performance assessment  
12 correctly, you pick the parameters that you're going to use  
13 and you justify them and the reviewers have to agree with your  
14 justification, and once you're done, you end up with limits  
15 on your individual radionuclides and that's the basis for  
16 them.

17 You may have assumptions in the PA that you have  
18 to protect in the field. For example, you may have assumed  
19 in one case where you have a concrete slab that's three inches  
20 thick, or something of that nature, over a particular area,  
21 and you have to protect that assumption. You may have a  
22 certain depth of groundwater you have to protect and, you  
23 know, maybe you would have some criteria you'd set ahead of  
24 time but it would be performance-based.

25 It would say you need to demonstrate stability;

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1 you need to demonstrate whatever you decide is important. And  
2 you may say something like no explosives, you know -- no water  
3 above a certain percentage can go into the waste forms that  
4 go into the facility, those kinds of criteria.

5 But as Dave said earlier, DOE's been doing this  
6 a long time and there's a -- you know, a large body of  
7 information that you could use to develop this. And then  
8 based on what Dan Shrum was saying -- I believe I understood  
9 it correctly -- you wouldn't need those tables anymore that  
10 are currently in Section 61.55. They are no longer necessary.

11 DR. LESLIE: Let me see if I can try to pull  
12 together the why. And I think it's in there. But in general,  
13 if you go down the site-specific WAC you're going to be doing  
14 a performance assessment. So you're going to be doing it from  
15 a risk-informed performance-based approach.

16 And therefore, you're -- by doing that approach  
17 you're basically saying whatever -- when you take on that  
18 responsibility of up-taking that approach, you're going to  
19 have to defend those things in there. And so the previous  
20 things that were on slide 26 were developed prior to having  
21 to defend a performance assessment.

22 If there are additional types of things you want  
23 it again, to be performance based because it's consistent with  
24 this philosophy or risk-informed performance base. Is that  
25 why you were suggesting those things?

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1 MR. GOLDSTON: Yes. That's a good way to  
2 describe it.

3 DR. LESLIE: Anything else you want?

4 DR. ESH: No. I mean, my only follow-up would  
5 be if we go back to Slide 26 I think a good example would be  
6 criticality. So, you know, the reason why criticality is  
7 handled the way it is now in our regulations is because the  
8 Agreement States that in context of an operation of a disposal  
9 facility we don't have the resources or maybe in some cases  
10 capabilities to deal with that issue. We're going to leave  
11 that under NRC's purview, for instance.

12 So -- and -- so that's an analogy to -- or like  
13 the example I gave with chelating agents or it could be free  
14 liquids or whatever -- some of the minimum requirements that  
15 you have now, are they things that you want to have part of  
16 the evaluation of not? Because what I may think is  
17 appropriate for somebody to evaluate the impact of chelating  
18 agents may be much different than what another regulator may  
19 expect with respect to chelating agents. So this is a good  
20 area for you to think about.

21 If you don't have feedback today, that's fine,  
22 especially as anything that we propose comes out, we would  
23 welcome feedback on, as how much flexibility should we afford  
24 to all of these different basically, technical topics  
25 associated with waste form.

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1           Because if you don't specify them in the  
2 regulation -- then you may look at two things: needing to  
3 analyze them in your evaluation and secondly, needing to  
4 characterize or demonstrate what you have associated with  
5 that aspect.

6           So like, say, you -- right now do you know the  
7 presence -- if you allowed chelating agents to be part of your  
8 evaluation are the chelating -- do you characterize all the  
9 waste -- do the generators characterize all the waste as to  
10 how much chelating agents they have in it when they send it  
11 to a disposal facility. I don't know the answer to that.  
12 Maybe Dan or somebody else does.

13           But I think that sort of thing -- you can create  
14 a burden, both in terms of up front in the analysis when you  
15 do your licensing or periodic reviews and for the generators,  
16 in terms of characterization whenever they're sending  
17 material to the disposal site.

18           DR. LESLIE: Are there other comments on the  
19 phone?

20           VOICE: Yes.

21           Roger Seitz, your line is open.

22           DR. LESLIE: Roger, could you identify your  
23 affiliation, please?

24           MR. SEITZ: I was going to do that. I realized  
25 I forgot last time.

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1                   This is Roger Seitz from Savannah River National  
2                   Laboratory. And just a quick comment this time. I just  
3                   wanted to put in a point that when we start thinking about  
4                   intrusion scenarios and guidance related to intrusion  
5                   scenarios, I would like to express my opinion that we need to  
6                   keep in mind international guidance and historical practices  
7                   in the U.S., where it's really been a stylized scenario.

8                   It's kind of an illustrative case. We look at  
9                   someone who may drill into the facility or near the facility  
10                  and we look at something like a basement construction. I  
11                  think if we start in a generic sense looking much beyond that  
12                  it opens up to become this very broad analysis that we could  
13                  end up making decisions based on obscure scenarios that are  
14                  very unlikely to occur but we're assuming have a probability  
15                  of one.

16                  So in general, the comment is I think I would  
17                  emphasize some very stylized scenarios that meet the intent  
18                  of what we're trying to accomplish.

19                  DR. LESLIE: Okay. Thank you, Roger.

20                  Dave, can you envision -- and again, where  
21                  you're juxtaposed what Sonny said about risk-informed  
22                  performance-based approach for the performance assessment  
23                  then you have a stylized for intruder. How does  
24                  that -- how -- can you address that in -- without up-front  
25                  laying out a bunch of stuff in the regulation? Or would that

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1 all be in the guidance?

2 DR. ESH: Well, I mean, that's the issue I tried  
3 to talk to earlier. Maybe I didn't do it so well. But  
4 basically, are there elements of the problem and evaluation  
5 that you should constrain and then other elements that you  
6 afford flexibility for. And as Roger indicated, maybe in the  
7 area of the intruder scenario that's not an area where you want  
8 to afford an infinite amount of flexibility. You want to  
9 constrain it like was done in the past that say, "This is  
10 conservative."

11 And, you know, I would just add as an aside, NRC  
12 has been working on trying to look at what our -- what may be  
13 the probabilities of intrusion using GIS [geographic  
14 information systems] and land-use maps and how they've  
15 changed over time. And we're getting some numbers on that.  
16 We'll be able to share them with the stakeholders in the  
17 future.

18 So we're trying to do our homework on it to see,  
19 Okay, is it reasonable to consider that, what may be the  
20 probabilities, you know, are we in the right ballpark or not.  
21 But that sort of thing ...

22 But, yes, Bret, you know, you have two competing  
23 forces: one to be quote, unquote, more risk-informed, and the  
24 other one to avoid speculation. Well, when you're dealing  
25 with uncertainty, uncertainty is a fact risk. And there may

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1 be some types of uncertainties where the regulator thinks it's  
2 prudent to limit them in some form or another and others to  
3 allow people to explore the impacts of those uncertainties on  
4 their specific sites.

5 DR. LESLIE: Okay.

6 Other comments, questions, on the phone?

7 THE OPERATOR: Once again, \*1 for any questions  
8 or comments.

9 (No response.)

10 THE OPERATOR: There are none at this time.

11 DR. LESLIE: Okay.

12 One last chance for the people in the room.

13 MR. PERSINKO: Bret, let me add something.

14 DR. LESLIE: Sure.

15 MR. PERSINKO: This is Drew Persinko. In my  
16 opening remarks I gave a quick summary of the Agreement State  
17 perspective on the WAC. And I said I felt -- they felt it was  
18 generally -- they were generally supportive of it. But they  
19 had some reservations. And the reservations had to do with  
20 what Dave was talking about earlier, where he mentioned that  
21 the disposal sites generate the QA [quality assurance]  
22 requirements and they would audit the generators and be sure  
23 that the WAC is met. And the generators must show that they  
24 meet the QA requirements.

25 Well, this was the issue that I think the point

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1 of reservation that was made by the Agreement States was that  
2 that would be -- that would require more resources of them to  
3 make sure that the QA was met. And I was wondering if either  
4 Texas or Utah was on the line and would like to expand on that.

5 (No response.)

6 MR. PERSINKO: Guess not.

7 DR. LESLIE: So is the State of Utah or the State  
8 of Texas on the phone line this morning with us?

9 (No response.)

10 THE OPERATOR: I do have a Rusty Lundberg that  
11 has come into the queue.

12 DR. LESLIE: Okay. Thank you.

13 Go ahead, Rusty.

14 MR. LUNDBERG: Thank you very much for the  
15 opportunity, Drew, to add to that a little bit. What we were  
16 talking about is as you look at the opportunity to afford waste  
17 acceptance criteria as perhaps the primary basis for movement  
18 of waste from a generator to the disposal facility, it does  
19 add to the host state or the regulators in the host state in  
20 terms of the resources to monitor that. And so we were simply  
21 raising the -- or at least offer a comment that for  
22 consideration that there is a resource -- an added resource  
23 burden from our perspective to shift to a waste acceptance  
24 criteria.

25 Not that in and of itself it is a negative

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1 aspect. We're just wanting to make sure that we thought that  
2 the opportunity of commenting that there is to us an added  
3 resource burden to open that opportunity up.

4 DR. LESLIE: Thank you, Rusty.

5 A comment here.

6 MR. BALTZER: Rod Baltzer, Waste Control  
7 Specialists. Just to clarify, the State of Texas has actually  
8 required waste acceptance criteria, incorporated those into  
9 our license. So we, as the generator, were not able to develop  
10 waste acceptance criteria. That was the state's burden for  
11 Texas, anyway. Just to note that as a little different than  
12 usual.

13 DR. LESLIE: Any final comments?

14 DR. ESH: So the next area we're going to talk  
15 about -- and I believe the last area for me is compatibility.  
16 The direction that we got is the category for the  
17 site-specific analysis and site-specific waste requirements  
18 that ensures alignment between the states and the federal  
19 government on safety fundamentals provides states with the  
20 flexibility to determine how to implement these requirements.

21 I felt like when we saw this part of the  
22 direction from the Commission this was, "Yes," we already  
23 hopefully are doing this. In our initial proposal and in our  
24 final proposal this was like, already stating the way that  
25 this part of the program is supposed to work. So we're

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1 supposed to ensure that everybody is consistent on the key  
2 things and we afford some flexibility on some of the other  
3 pieces of the process.

4 Just some context for compatibility. Most of  
5 our states are Agreement States generated from Section 274 of  
6 the Atomic Energy Act. It was a process to promote orderly  
7 regulatory pattern and discontinuation of certain NRC  
8 authorities. Essentially identical categories were -- you  
9 know, as you move into compatibility you start getting very  
10 much in the weeds.

11 Essential identical categories are "A" and "B."  
12 "A" being the basic standards and related definitions.  
13 "B" -- it's direct trans-boundary implications. And then  
14 essential objective categories, which are "C," you're  
15 required to avoid conflicts, duplications or gaps; "H&S,"  
16 which is Health and Safety, particular health and safety  
17 significance. And states can be more restrictive. And then  
18 there's other categories. "D," not required for  
19 compatibility or NRC cannot be relinquished for states.

20 But it's basically how much of a regulation NRC  
21 develops as required to be reflected in the state's  
22 representation, either identically or they have some  
23 flexibility or they don't have to have it at all. That's the  
24 layman's description of compatibility.

25 So we're seeking feedback on the compatibility

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1 category for the elements of the revised rule. Now, what you  
2 had was an early representation of the rule with some proposed  
3 compatibility criteria. You obviously do not have a new draft  
4 rule with proposed compatibility criteria.

5 So I realize it's going to be hard for some of  
6 you to comment on these specific things. But -- because you  
7 don't know the form that the rule is going to take. But you  
8 can probably guess at some of the key issues that we've talked  
9 about here and maybe what aspects of them, if you have used  
10 on compatibility, what compatibility classes you think they  
11 should be. But basically, we want to ensure alignment between  
12 the states and the federal government on the safety  
13 fundamentals and provide flexibility where we can.

14 The stakeholders support was mixed. I guess  
15 that's partly due to the differing opinions about what  
16 elements of the regulation should be what category. And there  
17 was concern expressed that the compatibility designation  
18 should be neutral and not create opportunities for unfair  
19 competitive advantages, which we've heard many times in the  
20 past.

21 So that's kind of our 50,000-foot view of  
22 compatibility. Maybe you have some specific areas of the  
23 regulation where you think compatibility should be different  
24 classes or different categories. And we can discuss that now.

25 DR. LESLIE: Thanks, Dave.

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1 Are there any comments or questions here in the  
2 room? It looks like at least one person's going to have a  
3 comment.

4 MR. BALTZER: Rod Baltzer, Waste Control  
5 Specialists. We do think that compatibility is important.  
6 It is kind of interesting how diverse some of the Agreement  
7 States are from what NRC has proposed. It is important for  
8 the states to have some flexibility. I mean, do they want to  
9 host site or not. But as far as going through the licensing  
10 process it would be nice to have a pretty consistent message  
11 for the public on what kind of safety standards are in place  
12 and the technical requirements that you have to meet and able  
13 to host a disposal facility.

14 DR. LESLIE: Thank you.

15 Any others?

16 (No response.)

17 DR. LESLIE: I'll turn to the phone. And  
18 especially if any of the Agreement States are on, certainly  
19 this would be a great time to provide us additional insights.  
20 But I also don't want to put you on the spot. So -- are there  
21 any comments on the phone?

22 THE OPERATOR: \*1 to ask a question or make a  
23 comment.

24 (No response.)

25 THE OPERATOR: I'm currently -- oh. One

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1 question just populated.

2 Diane D'Arrigho, your line is open.

3 MS. D'ARRIGHO: Thanks.

4 I wanted to assert that the authority of states  
5 to be more protective than the federal government is something  
6 that should be retained. There are certain things that some  
7 states have had in their removal of waste criteria; their  
8 removal waste rules/regulations were hard fought. And it  
9 would be a real shame and -- it would just be a shame if the  
10 NRC were to have strict compatibility and not allow those  
11 things to be prevailing.

12 DR. ESH: Thank you, Diane.

13 THE OPERATOR: Once again, \*1.

14 (No response.)

15 THE OPERATOR: Currently no questions.

16 DR. LESLIE: Do we have any questions on the  
17 webinar?

18 VOICE: The expansion.

19 DR. LESLIE: Oh.

20 VOICE: I don't think so.

21 DR. LESLIE: Okay. I guess -- any other  
22 comments from the NRC staff at this time?

23 We're a little bit early. But I neglected to  
24 say --

25 VOICE: They're ready for us.

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1 DR. LESLIE: Oh, they're ready for us?

2 VOICE: Yes, they are.

3 DR. LESLIE: Oh, okay. All right. Then I will  
4 get back to the parking lot, which I had a few things -- and  
5 I'll just give Drew and Greg a heads up.

6 In terms of the process, you had talked a little  
7 bit about, you know, we're out of process, what we did before.  
8 Kind of questions that I heard from Lisa, which is, "What is  
9 that process?" Maybe an explanation when you get to the end  
10 and wrap up. How -- what is a regulatory basis? Is that an  
11 internal document that is the basis for how the staff are to  
12 start to write? Or is there something else that the public's  
13 going to see before they see a draft rule. And make -- just  
14 jot that down for now and we'll come back to it.

15 THE OPERATOR: Excuse me, sir. There is  
16 another question.

17 DR. LESLIE: Okay. Well, we're happy to take  
18 that question.

19 John Greeves, your line is open.

20 MR. GREEVES: Yes, I'm here. I was hoping  
21 someone else would ask this question. But I'm a little  
22 concerned about Category "C." Is it your interpretation that  
23 could be used to not even allow a waste acceptance criteria?  
24 And I'd be concerned if that was the issue.

25 DR. LESLIE: You have a pensive look here.

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1 DR. ESH: Yes.

2 I'm thinking, John. I don't know if I have an  
3 answer for that at this time.

4 MR. GREEVES: You understand the question.  
5 Literally, if it's Category "C" it could be more restrictive  
6 by just not even allowing it. So I would have a problem with  
7 that. Short of that --

8 DR. ESH: Well, I guess the concern would be if  
9 you had, for instance, isotopes, which are not reflected in  
10 Section 61.55 going into your -- potentially going into your  
11 disposal facility it wouldn't be more restrictive to not allow  
12 the WAC. It would possibly be less restrictive because maybe  
13 that WAC would identify limits for those isotopes that aren't  
14 in the tables. So that's why I didn't really have and I don't  
15 have an easy, quick answer for you. I think it could go either  
16 way. Whether that would be -- whether you would interpret  
17 that as being more restrictive or less restrictive.

18 And I think we have a process for -- I don't know  
19 if I want to put Andrew on the spot but I guess I will. We  
20 have a process for how they go about evaluating and assigning  
21 these various compatibility designations when Agreement  
22 States go to developing their regulations after we've  
23 proposed our regulations.

24 That's correct. Right?

25 MR. GREEVES: Let me just --

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1 DR. ESH: We'll get some amplification and get  
2 back to you.

3 MR. CARRERA: It's Andy Carrera from NRC. Yes,  
4 we do have a process for that. The rulemaking team would  
5 propose a certain category for the amended sections we have.  
6 Then we would take it to the compatibility panel that's  
7 composed of NRC staff, as well as the Agreement States'  
8 representatives. And they will go line-by-line through each  
9 of those to [determine the] compatibility. And that gets a  
10 vote on it. The Agreement States get to vote on it, whether  
11 they agree with that or they propose new compatibility level.

12 Once we receive the feedback from that panel the  
13 NRC staff goes back to the writing and either decide to adopt  
14 it or reject the recommendation from the panel. If we were  
15 to reject a recommendation from the panel we have to justify  
16 why we doing that to the Commission. And the Commission will  
17 have the final word in saying what they want it to be.

18 DR. ESH: But then when the Agreement States  
19 develop their requirements there's something done in the  
20 process to evaluate whether that requirement is consistent  
21 with the compatibility class that it was supposed to be.  
22 Right? So to answer John's question there's a step in the  
23 process where that evaluation is done.

24 MR. CARRERA: I'm not familiar with that.

25 DR. ESH: Okay.

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1 MR. CARRERA: I'm sorry.

2 DR. ESH: All right. It was a question, not a  
3 statement. So --

4 DR. LESLIE: Okay.

5 MR. GREEVES: Yes. But just to summarize, I'd  
6 be concerned with a process that would allow Agreement States  
7 to just not implement a waste acceptance criteria. That's  
8 all.

9 DR. ESH: I think it would depend on the  
10 compatibility designation. If it's designated in one where  
11 they don't have to adopt it then they would have the  
12 flexibility to do that. And if it's one where they have to  
13 adopt it then it would have to be there. So --

14 MR. GREEVES: All right. Then I would take the  
15 position it should be "A" or "B," not "C." This is the problem  
16 with Section 61.58 right now.

17 DR. LESLIE: Okay. Thank you very much, John.

18 I guess with that, we're going to go ahead and  
19 break for lunch a little early. But it also means you get a  
20 longer lunch. We were going to break from 12:30 to 1:30. And  
21 instead, we'll break now at 12:15. We'll be -- meet back right  
22 at 1:30. That should give Greg enough time to go through his  
23 presentation and get comments and questions and potentially  
24 wrap up a little bit early. But we'll go -- we're scheduled  
25 till 4:00. And we'll go as long as 4:00.

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1                   Thanks. And we'll reconvene at 1:30 central  
2 Texas time.

3                   (Whereupon, at 12:15 p.m., the hearing was  
4 adjourned, to reconvene this same day, May 15, 2012 at 1:30  
5 p.m.)]

6                   \*\*\*\*\*

7                   AFTERNOON SESSION

8                   DR. LESLIE: It's getting close to the time to  
9 start up. And most people back in the room. We'll wait a few  
10 more minutes then get started here in a second.

11                   Is the phone operator still on? And -- want to  
12 make sure the phone line are still up.

13                   THE OPERATOR: Yes, we are still here.

14                   DR. LESLIE: Okay. Thank you very much.

15                   THE OPERATOR: You're welcome.

16                   DR. LESLIE: And we will have a presentation  
17 here in a moment. And there will be time for again, public  
18 comments during Mr. Gregory Suber's presentation, as well.  
19 So we'll get started in just one or two minutes more.

20                   (Off the record)

21                   DR. LESLIE: Now that we've gotten all of the  
22 audience members back here -- of the huge audience here in  
23 Dallas -- we'll go ahead and get started. I hope everyone had  
24 a chance to enjoy their lunch, wherever they are, either here,  
25 D.C. or in the states.

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1 Kind of the -- to -- before we get into the next  
2 presentation I just kind of wanted to check in with the  
3 audience and let people know where we're at. We have one more  
4 presentation that we'll be doing today of Greg Suber. He'll  
5 have points in which we'll be seeking some feedback, as well.  
6 There will be an opportunity for some final comments. And  
7 although it's not on the agenda, I think Drew has some  
8 follow-up kind of observations ala Larry Camper, although I  
9 don't know --

10 MR. PERSINKO: It's a closing.

11 DR. LESLIE: Closing comments. But also, one  
12 of the other things we'll do is I'll get Andrew up here to kind  
13 of address a little bit where we are, go back to that process  
14 and schedule and talk a little bit about the opportunities for  
15 public involvement, other than the public meeting.

16 So with that, I'm going to go ahead and turn it  
17 over to Greg Suber. And that's for your attention.

18 MR. SUBER: All right. Good afternoon.

19 (No response.)

20 MR. SUBER: Good afternoon.

21 (Chorus of Good afternoon.)

22 MR. SUBER: Okay. You're going to have to wake  
23 up for my presentation. I'm sorry David took all morning.

24 VOICE: Back at you.

25 (General laughter.)

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1 MR. SUBER: All right. Good. As you know, my  
2 name is Gregory Suber. I am the Chief of the Low-Level Waste  
3 Branch. And the first thing I'd like to do is give out some  
4 kudos to my staff. I mean, the reason I'm here is because I  
5 have some great people working for me.

6 First of all, I'll give kudos to Tarsha, who's  
7 right outside. She found this place and she arranged the  
8 whole meeting. I think she did a outstanding job.

9 In addition to that, I'd like to acknowledge Dr.  
10 Michael Lee and Mr. Donald Lowman, who worked on a  
11 presentation for me. And also, Chris Grossman, who's done a  
12 substantial amount of work on Part 61, as well. So I give them  
13 accolades before I start my presentation.

14 Okay. Here's the outline for my discussion.  
15 Actually, I think you guys have gotten enough of the  
16 background so we won't bother too much with giving you more  
17 background information. But I will -- I'll start by  
18 highlighting some of the stakeholder involvement.

19 Some of the emerging issues that have come to  
20 the fore as a result of some of the stakeholder involvement  
21 that we've had are summarized, some of the things that we heard  
22 from you and -- at the March 2 public meeting and talk about  
23 the path forward.

24 Okay. With regard to stakeholder involvement,  
25 as you know we've had a substantial amount of stakeholder

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1 involvement. So much so that some of you are becoming more  
2 like family than stakeholders. And I just wanted to tell you  
3 that Thanksgiving is at my house this year. And I'll be frying  
4 a turkey and I'm also going to try to smoke one for the first  
5 time. So you all are welcome.

6 We've had a lot of stakeholder involvement. We  
7 started out actually a few years ago with the DU workshops.  
8 And we had those both in Rockville and in Utah. And those were  
9 basically revolving around what we called at the time the  
10 depleted uranium rulemaking. That --

11 In addition to getting your comments with  
12 respect to that rulemaking we've gotten a lot of comments as  
13 we have gone forward on other Part 61 activities.  
14 Specifically, the Volume Reduction Policy Statement and the  
15 branch technical position [BTP] on concentration averaging.  
16 We've gotten public comments in a couple of venues, including  
17 comments from the ACRS [Advisory Committee on Reactor  
18 Safeguards] on the BTP. And we've received a substantial  
19 number of comments on the -- regarding Part 61 when we put the  
20 Volume Reduction Policy Statement out for public comment.

21 Drew has already talked about the OAS/CRCPD  
22 interactions that we had. And I just wanted to reiterate that  
23 we have engaged Agreement States and CRCPD, which also  
24 includes non-Agreement States. And we've gotten quite a few  
25 comments from them, as well.

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1           Okay. With respect to emerging issues, one of  
2 the ones that came to the forefront was inadvertent intruder  
3 protection. Now, the concept of -- we received comments  
4 basically saying that NRC's approach to inadvertent intruder  
5 is flawed, that -- we had a lot of people who took issue with  
6 the assumption of probability of one that intrusion would  
7 actually occur and that we were in fact, sacrificing the  
8 protection of current generations at the expense of future  
9 generations. And so those are some of the comments that we  
10 received on inadvertent intrusion. And I believe we had some  
11 of that conversation here today.

12           The next topic that's kind of emerging was the  
13 concept of institutional control period. We've had some  
14 conversation on this today, as well. But we received comment  
15 that the 100 years institutional control period should be  
16 revisited. We've gotten a couple recommendations. Some  
17 people say 200 years would be more appropriate. Some said  
18 that 300 years would be more appropriate. In fact, we  
19 received information that some sites even have what they  
20 consider perpetual care funds so that they will be able to  
21 maintain the sites far beyond the current 100-year duration.  
22 So the 100-year duration is too short.

23           Another comment that we had was on the  
24 Environmental Impact Statement associated with Part 61. The  
25 Environmental Impact Statement made a number of assumptions

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1 that were appropriate when the rule was first promulgated.  
2 But that was 35 years ago. A lot has changed. A lot of those  
3 assumptions are no longer valid. And we received comments  
4 that we need to revisit the Environmental Impact Statement and  
5 that it's time for the NRC to update it.

6 And also, we've received comments regarding the  
7 engineered barrier system and that the -- we don't know the  
8 performance of some of those systems and that we need to do  
9 more research as to how they're going to perform over the long  
10 term.

11 We also have a couple definitions and concepts  
12 that we need input in, as far as defining them. We already  
13 talked about reasonably foreseeable future. I think someone  
14 made a reference to a number and how many opinions you have.  
15 You have ten people in a room then you'll probably have 20  
16 definitions of what reasonably foreseeable future should be.  
17 So we encourage you to give us what you think a proper  
18 definition would be for reasonably foreseeable future.

19 Another concept that came to the forefront as  
20 we were having our discussions and some of that which would  
21 have been discussed today is the concept of having some kind  
22 of de minimis level for Class-A, having some type of floor for  
23 Class-A and establish a level that -- I don't want to say below  
24 regulatory concern because that's a -- that's kind of like a  
25 negative term -- but having some kind of level, some kind of

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1 cumulus level for Class-A.

2 And also, what was brought up was separate  
3 disposal requirements and criteria should be established for  
4 depleted uranium. And I think we heard a little bit of that  
5 today, that depleted uranium is really different in its  
6 characteristics from all other types of low-level waste and  
7 that the disposal of depleted uranium should be addressed  
8 outside of the context of the current rulemaking.

9 Okay. Also, we had discussions earlier but  
10 some of the things that have come-up was the compatibility  
11 category for Section 61.58 should be changed to "B" from "D."  
12 Currently in the -- in a rule as it stands now the  
13 compatibility category for 61.58 is such that states do not  
14 have to adopt it. And some of our commenters thought that it  
15 was important to have a designation that allowed the use of  
16 Section 61.58 and they recommended that we change the category  
17 from "B" -- from -- excuse me -- from "D" to "B."

18 And also, there was a lot of talk about the  
19 concept of grandfathering for existing sites. Existing sites  
20 were interested in knowing how is this new rule going to impact  
21 them. You know, when the rule was promulgated, when it's put  
22 into effect what kind of a -- would there be any  
23 grandfathering, will there be any clauses in the rule that  
24 would exempt older sites from some of the new regulations.

25 And also, we received comments about if you're

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1 going to replace the -- if we're going to implement a WAC, a  
2 Waste Acceptance Criteria in Part 61 then could we just do away  
3 with the waste tables in Section 61.55. So that's open for  
4 discussion, as well.

5 Also included in the discussion for definitions  
6 and concepts was how could we address uranium and its daughter  
7 products in the waste classification tables. Right now they  
8 don't exist in the waste classification tables because of  
9 assumptions that were made when Part 61 was promulgated 35  
10 years ago. And we've gotten comments that, "Hey, we should  
11 explicitly address uranium and its daughter products in an  
12 update of the Section 61.55 waste classification tables."

13 Now, we've talked a little bit about ICRP  
14 dosimetry today. And I would just like to mention that in  
15 looking at the update to ICRP one of the -- excuse me -- I'm  
16 sorry. Okay. Oh, okay. I'm sorry. In looking at ICRP dose  
17 methodology we talked about the flexibility. The ability to  
18 use the dosimetry and what the compatibility category would  
19 be for that particular part of the rule.

20 We also talk about expanding the classification  
21 tables to include a more comprehensive sweep of the isotopes  
22 which is kind of similar to what I talked about before. Okay.

23 Okay. So now I'd like to discuss just a couple  
24 of things that we heard in the March 2 meeting. One of the  
25 things that we heard dealt with the amending of Part G of the

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1 Part 20 low-level waste manifest [rule]. And we talked about  
2 this a little bit earlier with respect to the four isotopes  
3 that we were calling the "Phantom Four."

4 And the one point of reference that I did want  
5 to make or clarification was that the NRC has performed a  
6 Technical Evaluation Report on the Topical Report that was  
7 produced by Vance Associates. And in that report they had a  
8 computer code that calculated concentrations for iodine and  
9 technetium so that those computations could actually be  
10 calculated as opposed to using a minimum detection limit.

11 And that is possibly one way that the issue of  
12 the four isotopes in Appendix G could be addressed as opposed  
13 to using the minimum detection limits to use a program similar  
14 to one that's already available to calculate those limits. So  
15 that's one approach. And that could actually address some of  
16 the concerns without expanding the current rulemaking to the  
17 Part 20 rulemaking.

18 The other comment that we heard was -- had to  
19 do with the greater-than-Class C -- the Department of Energy  
20 greater-than-Class C EIS and how the greater-than-Class C EIS  
21 would -- could fit or could mesh with what we're doing with  
22 respect to Part 61.

23 Okay. I'd also like to talk about  
24 SECY-10-0165. Now, this was the SECY where we went out and  
25 we proposed five options for revising Part 61. And we still

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1 have on our plate the assignment to go out and get stakeholder  
2 comment about revising Part 61 past this rulemaking.  
3 Currently, we have a charge to go ahead and complete the  
4 rulemaking that's on tap. But after we finish this rulemaking  
5 we have a charge to go out and to still receive information  
6 on a more comprehensive revision of Part 61.

7 Now, if you look, Option 4 on the SECY-10-0165  
8 is actually incorporated in the SRM that the Commission has  
9 proposed. And so what we would be doing is receiving your  
10 input on what other revisions or what other changes we could  
11 make to Part 61.

12 Okay. And finally, the path forward. As you  
13 know, we are here today to gather comments on the current Part  
14 61 rulemaking. Specifically, that rulemaking as it was  
15 expanded by the Commission SRM. And I'd like to pull your  
16 attention to the third line. Because I think Mike Lee would  
17 probably kill me if I didn't.

18 What we -- what he wanted to emphasize or the  
19 point that we wanted to get across is that this is only one  
20 opportunity for you to submit comments. This meeting is being  
21 transcribed. So, of course, all the comments that you make  
22 will be available in the transcript. However, you can submit  
23 written comments to this docket number at [regulations.gov](http://regulations.gov).  
24 And so if you're sitting here, you hear something, you go back  
25 and you say, Hey, I wish I would have said something about

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1 that, it's not a problem. You can go to regulations.gov and  
2 you can submit written comments.

3 And so right now we are receiving those comments  
4 and we are in the midst of preparing the technical basis for  
5 the rulemaking. And we owe that technical basis to the  
6 rulemaking group by the end of September. And so we would ask  
7 that, you know, you submit your comments as soon as  
8 practicable so that they could be incorporated into the  
9 technical basis. Okay?

10 And with that --

11 DR. LESLIE: All right. Thanks, Greg.

12 I'll open it up for questions here or comments  
13 on what Greg has presented and anything else you've thought  
14 about since you've had an hour or so to chat with folks.  
15 But -- anyway, there's at least one person lining up, running  
16 to the microphone.

17 MR. SUBER: All right.

18 MS. EDWARDS: Hopefully, not tripping. This  
19 is Lisa Edwards with Electric Power Research Institute.

20 Thanks for your presentation, Greg. I felt it  
21 was a really nice summary and reflective of what I have heard  
22 in the meetings, as well. I have comments in three areas. So  
23 I can kind of give you one and then sit down and let other  
24 people take a shot or however you decide you'd rather do it.

25 The first one is related to what I call the

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1 Phantom Four or we refer to as the Phantom Four. These are  
2 the Part 20 Appendix G, low-level waste manifest reporting  
3 requirements. We do think that it is important to have an  
4 accurate assessment of what the hazard and the disposal  
5 environment actually is composed of or comprised of.

6 This manifest reporting requirement has  
7 artificially inflated the inventories as reported for  
8 disposal sites. And it has done so for several new clients  
9 of pretty high importance relative to the long-term  
10 performance objectives related to the site.

11 Specifically, technetium-99 and iodine- 129,  
12 both highly-mobile in water kind of effected nuclides are  
13 grossly over-reported. And based upon some of our  
14 calculations we think maybe as much as a factor of 1000. And  
15 that change can have significant impact on what the long-term  
16 performance of the site is relative to these assumptions we  
17 make when we go out many, many years.

18 I like the idea of opening it up.

19 DR. LESLIE: Is this your second one or first?

20 MS. EDWARDS: No. No, this is --

21 DR. LESLIE: Okay. Sorry.

22 MS. EDWARDS: -- the same one. I like the idea  
23 of opening it up to a calculation based. The problem here is  
24 the lower limit of detection is often times reported as the  
25 actual concentration. That then is multiplied by the volume.

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1 And that's where the inventory comes from. So if the actual  
2 concentration is lower than the lower limit of detection you  
3 can see how that will grossly inflate.

4 Carbon-14 is another one of the four phantom  
5 nuclides. And our concern there is principally related to it  
6 does get over-reported from scaling factors. And also, in our  
7 calculations some of the early-on assumptions in terms of its  
8 mobility is overstated based -- relative to the current  
9 models and what we have. Tritium is the other Phantom Four  
10 nuclide. And it just has a 13 year half-life. So that's  
11 probably not as significant, in terms of the long-term  
12 performance.

13 And I'll let someone else go.

14 DR. LESLIE: Yes. Lisa, good.

15 Does the staff understand where this fits in  
16 terms of all of the ongoing things? Would this be addressed  
17 within the site-specific rulemaking or does someone at the  
18 table want to address --

19 MR. PERSINKO: I think Lisa's suggesting that  
20 we add it to the current site-specific rulemaking is my  
21 understanding.

22 MS. EDWARDS: Yes. This is an impact from Part  
23 20 that directly impacts the site performance assessment. So  
24 addressing it in some way to give people an alternative or to  
25 alleviate this artificial -- this artifact that's being

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1 introduced through the reporting requirements affects the  
2 performance assessment.

3 DR. LESLIE: Okay.

4 MR. PERSINKO: Let me just -- can I just ask a  
5 question on that before you sit down, Lisa? I just -- you  
6 know, there was this TER [technical evaluation report] that  
7 was written back in '95 -- August of '95 that used a computer  
8 code. And I have not read the TER, I have to say. It's a  
9 computer code called "3R STAT," which I understand put forth  
10 a method for figuring -- for calculating how much iodine-129  
11 and technetium-99 would be in the waste. I was wondering if  
12 you had a chance to look at that.

13 MS. EDWARDS: Tom, have you looked at that?

14 DR. LESLIE: On the record.

15 MR. PERSINKO: I just -- if not, that's okay.  
16 I'm just -- because I was unaware of this until --

17 MS. EDWARDS: I have not personally --

18 MR. PERSINKO: -- fairly recently. But --

19 MS. EDWARDS: I have not personally reviewed  
20 that.

21 MR. PERSINKO: But I understand that may be a  
22 method that one could use for -- although it only dealt with  
23 two nuclides it may be a method then that could be used for  
24 the other ones, as well. But it's something you may want to  
25 look into if you haven't.

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1 MR. KALINOWSKI: This is Tom Kalinowski with  
2 D.W. James Consulting. I'm familiar with the Code. It  
3 was -- it is a calculational method. Gene Vance & Associates  
4 are the ones that wrote it. It does go back and look at  
5 production mechanisms. And before I say anymore about it I  
6 guess I need to say that my company now owns that code. So  
7 I don't want to make this a sales pitch at the moment. But  
8 we -- but the fact of the matter is there is a calculational  
9 method. It has been reviewed. There is a topical report on  
10 it. And it does work.

11 MR. PERSINKO: Or -- it was just a thought that  
12 it might be one method of -- since we wrote a TER about it back  
13 in '95 it may be a method of addressing the concern short of  
14 including it in rulemaking.

15 DR. LESLIE: Okay, then.

16 DR. ESH: Bret, I have a follow-up.

17 DR. LESLIE: Sure.

18 DR. ESH: The factor of thousand, you said, was  
19 based on your calculations. Has there been any verification  
20 by measurement what the actual concentrations are in disposed  
21 waste?

22 MS. EDWARDS: I mean, I have to refer to Tom  
23 again. He was our principal investigator on that report.  
24 Not sure if there was independent validation.

25 MR. KALINOWSKI: Tom Kalinowski again. Could

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1 you repeat the question?

2 DR. ESH: Yes. My -- Lisa, in her comments,  
3 said that the -- you estimated up to a factor of a thousand  
4 based on your calculations, I think is how she described it.  
5 And my question was has the values of these isotopes been  
6 measured in the actual disposed-of waste streams or is it just  
7 based on calculation that you're asserting that the  
8 concentrations are much lower than reported?

9 MR. KALINOWSKI: Well, there were a couple of  
10 things that we did as part of our research. One, we looked  
11 at the EPRI database, which contained disposal information  
12 from most of the reactors over a period of about four years.  
13 We looked at what was reported. We also had access to a number  
14 of the sites' sample records. And we were able to pick out  
15 which samples had actual values and which ones were based on  
16 LLDs [lower limits of detection]. And we also used some of  
17 the methodology from the aforementioned code to do a  
18 calculation based on production mechanisms as to what the true  
19 inventory should be.

20 DR. ESH: Okay.

21 DR. LESLIE: Thanks for that clarification.

22 Lisa, before you go on to your next one  
23 I'll -- there's someone else who wants a -- just to break it  
24 up here.

25 MR. BALTZER: Rod Baltzer, Waste Control

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1 Specialists. Same topic. And I'm going to jump on the  
2 bandwagon with Lisa on this. We agree that there needs to be  
3 some guidance on manifest reporting of these items,  
4 particularly the iodines and the Phantom Four, I guess is what  
5 she called it.

6 We have -- at our site we have received  
7 MDAs[minimum detectable activities] that are on a order of  
8 five magnitude difference just depending on the lab and the  
9 customer who sends it and what their criteria are. If it isn't  
10 addressed in the disposal criteria and these rules at least  
11 maybe some guidance from the waste audits that are done for  
12 nuclear power plants by the NRC could be put out to make that  
13 more consistent across the board. Because we're getting a  
14 variety of different MDA values that are sent to us.

15 And since it is an important isotope,  
16 particularly us -- we've got limits in our license that are  
17 restricted by iodine, carbon and others -- it would be nice  
18 to have a consistent kind of approach that's realistic that  
19 you could achieve that is lower than what's being done right  
20 now.

21 DR. LESLIE: Thanks. Thank you, Rod.

22 Lisa, you want to move on to your second?

23 MS. EDWARDS: Okay. This is Lisa Edwards with  
24 EPRI again. The second item I wanted to comment on was the  
25 institutional control period. We have in previous meetings

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1 put forth a concept of expanding the institutional control  
2 period from 100 years to 300 years. So kind of related to  
3 Bret's request for the why to be provided, EPRI will provide  
4 a written comment that will maybe do this a little more fully  
5 than I can verbally.

6 But kind of in a nutshell for this record, it's  
7 from the short-term perspective. The increase in the  
8 institutional control period from 100 years to 300 years  
9 dramatically impacts the intrusion scenario results.  
10 Particularly because cesium-137 has a little over 30 year  
11 half-life. You get to that ten half-life mark and you have  
12 substantially less in your inventory. Definitely impacts your  
13 intrusion scenario dose. So if you're looking to maintain  
14 your dose below the performance objectives that's important.

15 We could not find a strong technical basis for  
16 the 100 years, other than it seemed like a reasonable burden  
17 for society to be -- take care of this race for 100 years but  
18 not longer than that. But that's more of an opinion, I think,  
19 rather than a technical basis. And we think with the digital  
20 revolution and the improvement of record keeping and  
21 accessibility of records a technical basis would exist to go  
22 back and revisit that.

23 If this short-term impact in terms of the  
24 intrusion scenario was considered in light of a site-specific  
25 performance assessment the impact in terms of the

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1 concentrations limits allowed in a particular trench could be  
2 dramatically affected by that which could potentially mean  
3 less orphan waste if the site does not have access to the  
4 higher activity disposal.

5 Long-term, the concept behind the 300 years kind  
6 of takes the first step of laying a foundation to consider a  
7 broader revision that would perhaps consider more  
8 international harmonization of the regulations. So when you  
9 go to 300 years you're adding an institutional control period  
10 that actually in the short term expands the controls placed  
11 on the waste and the disposal. The benefit is for a  
12 site-specific performance assessment to benefit from the  
13 short-term intruder scenario.

14 But in the long term that 300 years more or less  
15 encompasses or envelopes the Class-B waste. And in our work  
16 with international utilities what I see is that waste which  
17 in the U.S. we classify as either -- well, particularly  
18 Class-C waste is what most international countries classify  
19 as intermediate-level waste. Our higher-activity Class-A  
20 waste and the Class-B waste is more or less low-level waste.  
21 And what we call Class-A unstable right now or Class-A that  
22 doesn't require stabilization, the dry-active waste, is often  
23 times very low-level waste in international communities.

24 So in the spirit of keeping the comprehensive  
25 revision on the table, you do get short-term benefits which

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1 is why it's appropriate consideration for the limited  
2 rulemaking, but in the long term it lays a foundation for a  
3 more in-depth revision to consider alignment with  
4 international IAEA, very low-level waste, low-level waste and  
5 intermediate-level waste types of categories.

6 MR. SUBER: Thank you, Lisa. Anything else?

7 Is that --

8 MS. EDWARDS: Just -- well, I have one other  
9 comment. I didn't know if you had any response to that or --

10 MR. SUBER: Oh, a response? Well, that's good.  
11 That will particular be helpful as we move forward. And while  
12 part of it may be appropriate for consideration now, but the  
13 latter part of what you said is particularly helpful as we move  
14 forward and give the Commission information as to what a  
15 future rulemaking would look like because -- and the SECY that  
16 I was talking about, of course, international alignment was  
17 one of the categories. And so we thank you for that comment.

18 MS. EDWARDS: Sure.

19 DR. LESLIE: Go ahead, Lisa.

20 MS. EDWARDS: Okay. The last one is the dose  
21 conversion factors. I understand that right now applying the  
22 updated dose conversion factors or tissue weighting factors  
23 for the most recent ICRPs or more recent ICRP recommendations  
24 is not currently on the table for the Section 61.55  
25 classification tables. And I would urge that that be

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1 reconsidered.

2 First of all, these new dose conversion factors  
3 are reflective of the latest science. And it's a shame to open  
4 up a rule after 30 years and not take advantage of that updated  
5 science. This is substantially different than the whole-body  
6 methodology that is currently reflected in our rule.

7 Importantly, updating the dose conversion  
8 factors our research indicates that it would lead to less  
9 stranded waste. So right now there are some decommissioned  
10 sites that have waste that's being stored because they do not  
11 yet have access to Class-B/Class-C disposal. There may be  
12 people who for some period of time will not have access to  
13 Class-B/Class-C disposal.

14 And while everyone in this room, I'm sure, is  
15 quite hopeful that WCS stays open for the rest of our careers  
16 and beyond, there is no guarantee that any -- that that  
17 disposal site or for that matter, any disposal site would stay  
18 open always. There could be political elements in that.

19 The reason I say it can result in less stranded  
20 waste is that some of the tissue weighting factors  
21 increase -- so they're not conservative right now -- and some  
22 decrease. In our review the more significant decreases are  
23 related to what we call class-driving nuclides. In  
24 particular, nickel-63 and strontium-90. One goes down by a  
25 factor of seven and one goes down, I think, by a factor of 15

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1 or something like that. Can't remember which is which right  
2 now.

3 But this is important because that means with  
4 the improved science when you update the calculations with  
5 these new tissue weighting factors or dose conversion factors  
6 some of the waste that's currently classified as Class-B would  
7 actually turn out to be Class-A. So decommissioned sites that  
8 have this waste that's hanging out there waiting for a  
9 disposal avenue, some of that may have an immediate disposal  
10 avenue.

11 In other cases for those folks who would  
12 consider blending, a large-scale blending is an option, a  
13 larger activity band of waste could be a candidate for  
14 blending again, resulting in a greater volume of the waste  
15 that we generate being in that Class-A designation, I guess,  
16 which has a less-restrictive disposal and typically, we would  
17 think long-term easier access to disposal.

18 David, you mentioned that because of the  
19 interrelationship between the tables and other sections of  
20 the code that it could be quite problematic or difficult  
21 or -- I think maybe you said complex -- to update the dose  
22 conversion factors or to update the institutional control  
23 period.

24 And I guess what I'm suggesting is not a  
25 comprehensive revision of the table which might include

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1 things like removing or adding nuclides that don't currently  
2 exist, looking at different intrusion scenarios, et cetera,  
3 that you'd have different performance objectives or different  
4 scenarios to meet those performance objectives.

5           Instead, what I'm suggesting for a limited  
6 rulemaking is maintain your existing algorithm. Within that  
7 algorithm there's a term for when the intrusion occurs, which  
8 means it just defines where in that time line you pluck your  
9 data set from to determine if the performance objective is  
10 met. Keep your algorithm the same. Just pluck it at a later  
11 date.

12           The second is with the dose conversion factors.  
13 Again, don't change your methodology or your algorithm in  
14 terms of how you go about determining the concentration  
15 limits. Only change the terms related to the tissue weighting  
16 or the dose conversion factors. And in my opinion that could  
17 be seen as a limited rulemaking.

18           There was one other point that I wanted to bring  
19 out.

20           DR. ESH: While you'll looking I'll add I don't  
21 disagree with you that those, I think, would be things that  
22 wouldn't be too difficult if posed that way. But the problem  
23 I see is that we applied that same sort of logic to adding  
24 uranium to the tables because -- and if we were going to use  
25 the same methodology and the same calculations we could put

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1 uranium into the same calculations and generate uranium  
2 concentrations for the table.

3 And that was one of the options that we proposed  
4 to the Commission back in SECY-08-147. And they said not to  
5 do it at that time. They said, Wait until you do a  
6 comprehensive revision of the waste classification system in  
7 the future to do that sort of thing.

8 So to me, it doesn't make sense that we  
9 would -- even though I don't think it would be that  
10 challenging to do what you're saying, it wouldn't make sense  
11 based on their past direction to change the tables because of  
12 the institutional control period or the new ICRP methodology  
13 but then not add uranium to the tables. So I think we should  
14 either do all or do none. One or the other.

15 MS. EDWARDS: I'm not sure I'm in a position,  
16 at least from a technical basis, to comment on that. Because  
17 we haven't done any work with the depleted uranium. What  
18 you're saying on the surface makes complete sense to me. What  
19 I'm hearing is that the staff feels somewhat restricted based  
20 upon Commission direction on whether they can consider this  
21 or not. And I guess for my part, I would like to introduce  
22 to the public record and urge for you to reconsider that.

23 DR. ESH: Okay.

24 DR. LESLIE: Okay.

25 MS. EDWARDS: The last point that I would make

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1 on that is really related to are we or are we not going to do  
2 an expanded or comprehensive rulemaking, the Big C, as we  
3 referred to it earlier. I hope that we do. And I suspect it  
4 will happen someday. Whether it starts in 2014 or some other  
5 later date.

6 My concern is that if we keep the rulemaking that  
7 we're doing right now on limited -- where we don't include a  
8 reconsideration of the institutional control period and the  
9 dose conversion factors we're missing an opportunity to get  
10 a very large percentage of the benefit that we could get from  
11 the new science.

12 And if that comprehensive rulemaking doesn't  
13 take place then the limited rulemaking actually accomplishes,  
14 you know, maybe as much as -- I don't know how you quantify  
15 it -- but, you know, 70, 80 percent of what our research  
16 indicates would be justified.

17 And then if the comprehensive rulemaking takes  
18 place and starts in 2014, great. We just expand upon that and  
19 go the rest of the way. But if it doesn't the benefit -- we  
20 still get most of it with this limited rulemaking.

21 MR. SUBER: Okay.

22 DR. LESLIE: Yes. Lisa, that was -- I  
23 especially like how you did the third point, which is you gave  
24 all technical bases and then you gave your position.  
25 So -- which is helpful. But I would encourage you -- or that

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1 was a complete explanation. I'm sure stuff in writing,  
2 especially on, you know, how much can be accomplished with the  
3 different things, what's different between consistency of  
4 application of methodology versus changing the methodology  
5 might help the staff as they inform the Commission. So I  
6 strongly encourage --

7 MR. SUBER: Great.

8 And, Lisa, last point actually helped me through  
9 something I was struggling with in my presentation. I had a  
10 note down here and I couldn't figure out why I had that note.  
11 And I was like, "Wait a minute, what's -- why is this note  
12 right here." But now I remember, because it was actually a  
13 question for you.

14 Would it be a benefit -- I know we've talked  
15 about the guidance that we -- that we talked about the  
16 guidance that we produced for the rulemaking that was released  
17 to the states and but not released to the public. Now, I'm  
18 not committing to release that guidance to the public. But  
19 that's guidance that we have now. And I think it explains a  
20 lot of what we were trying to do, especially with the ICRP dose  
21 methodology in that guidance.

22 Would it be a benefit if we released that  
23 publicly so that you could see how the guidance complimented  
24 what we were thinking about for the rule?

25 MS. EDWARDS: Yes.

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1 (General laughter.)

2 MR. SUBER: Okay. Good. Well --

3 VOICE: When you're talking about the  
4 previous --

5 MR. SUBER: I'm talking about the previous  
6 guidance. I'm talking about the guidance that we completed  
7 in January, I believe it was. Yes.

8 Okay. Now, like I said, I'm not committing to  
9 releasing that. But at least now we can start a conversation  
10 about whether it would be easier for you guys to comment,  
11 especially since it is highly unlikely that you're going to  
12 see guidance generated from the new rule. Okay? Which I  
13 think is -- Andy Carerra's going to tell us in a few minutes.  
14 But having that guidance already available will kind of give  
15 you an idea of what the staff thought belonged in guidance and  
16 how the staff intended to implement it.

17 MS. EDWARDS: Well, I'll expand upon my --

18 Yes, this is Lisa Edwards with EPRI again.  
19 I understand much in the landscape has changed since the  
20 January direction from the Commission. But the guidance that  
21 you prepared for where you had been previous on the limited  
22 rulemaking would be helpful to us because although there are  
23 changes in the landscape, we could get a glimpse at what you  
24 were thinking and that helps inform our evaluation of what we  
25 may see in July.

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1                   And the reason that's important to us is we have  
2 a limited period of time to look at both the proposed rule  
3 language and the proposed guidance language and give you  
4 feedback. And --

5                   VOICE: Right.

6                   MS. EDWARDS: -- I don't have an unlimited  
7 budget. So if I have a little more time that helps me  
8 dramatically.

9                   MR. SUBER: Okay. Great.

10                  DR. LESLIE: Thanks.

11                  Are there any questions or comments on the  
12 phone?

13                  THE OPERATOR: Once again, \*1 for any questions  
14 or comments that you might have.

15                  And we do have a question from Arjun.

16                  DR. LESLIE: Go ahead, Arjun.

17                  DR. MAKHIJANI: Thank you, Bret. This is Arjun  
18 Makhijani from IEER.

19                  So I understood from the comment from EPRI just  
20 now that Subpart C is not under consideration for revision at  
21 all right now? Is that right?

22                  DR. LESLIE: Arjun, could you repeat your  
23 question?

24                  DR. MAKHIJANI: I -- from the comment just now  
25 I am understanding that Subpart C of 10 CFR Part 61 is not under

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1 consideration for revision. That wasn't my impression from  
2 the --

3 DR. LESLIE: Are you talking about the waste  
4 classification tables?

5 DR. MAKHIJANI: No, no. I'm talking about the  
6 dose limits, the organ doses, the guidance for the use of  
7 FGR-13 [Federal Guidance Report 13, entitled "Cancer Risk  
8 Coefficients for Environmental Exposures to Radionuclides"],  
9 "reference man," all that.

10 VOICE: Okay. I think NRC's --

11 DR. LESLIE: Yes, Arjun. That is going to be  
12 changed. That was actually proposed to be changed in the  
13 status initial submission. It's going to be 25 millirem TEDE.  
14 And in that TEDE we have been allowing exemptions to use the  
15 25 millirem TEDE dose for quite awhile. But that was going  
16 to be part of the formal change in the rule.

17 DR. MAKHIJANI: Well, I have a comment about  
18 that. I think that is a degraded public protection for  
19 actinides by more than an order of magnitude, including  
20 uranium. I made a comment to this effect in 2009 which -- to  
21 which I received no response and which has entirely been  
22 ignored. And also, you continue to ignore children in that  
23 you're continuing to use the "reference man."

24 So I think my comment would be that I would like  
25 to see the use of FGR-13 and organ doses maintained. I

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1 especially don't like that organ doses are being dropped in  
2 the name of modernizing the science. There's nothing modern  
3 about dropping organ doses. And TEDE anyway depends, first  
4 of all, on having organ doses and weighting factors. So, you  
5 know, it's a -- TEDE is a construct; it's is the organ dose  
6 that's real, where the radionuclides actually go for internal  
7 dose. So that's the basis on which, for instance, the  
8 government's compensation program is based for nuclear  
9 weapons workers.

10 So I don't understand why you're dropping organ  
11 doses and not even telling the public that, for a whole class  
12 of radionuclides, not only actinides but also strontium-90,  
13 iodine-131, that you're greatly relaxing public protection  
14 requirements. Iodine-129. Now, iodine-131 wouldn't be  
15 important for waste.

16 I mean, I don't understand what is the basis for  
17 going to TEDE, other than relaxing the -- I mean, could  
18 somebody answer that for me? Other than relaxing? Is it not  
19 true that public protection would be relaxed for a whole class  
20 of radionuclides if we go to TEDE instead of maintain organ  
21 doses, as well? I mean, I'd at least like an answer on the  
22 record for that.

23 DR. ESH: Yes. Arjun, this is Dave Esh. And  
24 I'm not a health physicist and I can defer to our health  
25 physicists for a more formal answer to that if you desire it.

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1 My --

2 DR. MAKHIJANI: Okay. I do.

3 DR. ESH: I'll give you my understanding of it.  
4 My understanding is that the TEDE approach is not ignoring the  
5 impact to organs. The impacts to organs are summed as part  
6 of that estimate that comes out of the TEDE calculation. So  
7 it's a different methodology but still including the impacts  
8 to organs without explicit limits to those organs.

9 Now, your issue regarding the children dose is  
10 different. And I think what we said in the past was when NRC  
11 has a policy regarding what they're doing with children doses  
12 within, I think, Part 20 --

13 Is that -- do you know if that's right, Drew?

14 Basically, when NRC establishes their policy  
15 regarding how they deal with different types of people in the  
16 potential affected population the low-level waste regulations  
17 will be done in a consistent fashion. Right now we are  
18 consistent with the way that NRC does those types of  
19 calculations throughout their programs.

20 DR. MAKHIJANI: Thank you, Dr. Esh. Two  
21 comments. One is, you know, if you just look up FGR-13 and  
22 do simple arithmetic you can conclude that for instance, the  
23 bone dose from uranium or thorium is greatly in excess of TEDE.  
24 TEDE not only incorporates or it depends on organ dose. It  
25 doesn't incorporate organ dose. It incorporates these

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1 weighting factors for organs that change from time to time.  
2 Today this organ -- you know, today gonads are so many percent  
3 and tomorrow gonads are a different percent. Today breasts  
4 are a certain percent and tomorrow breasts are a different  
5 percent.

6 It's the organ dose that's actually for internal  
7 dose the most important scientifically valid quantity. TEDE  
8 is a derived quantity. Moreover, it is a fact that you can  
9 establish very quickly in three minutes from looking at FGR-13  
10 that the allowable doses from a whole class of radionuclides,  
11 iodine-129, strontium-90, thorium, uranium, plutonium,  
12 neptunium, and americium would be relaxed by more than an  
13 order of magnitude if you drop organ doses.

14 TEDE on no account is protective of the public  
15 to the same extent. It doesn't matter that it includes  
16 weighting factors. My question was -- I would like an answer,  
17 a simple answer to the question, it is (a) would allowable  
18 doses for these radionuclides under the TEDE 25 millirem rule  
19 go up or not and (b), by how much so that the public at least  
20 knows what the NRC is doing and how under the guise of  
21 simplifying things or modernizing things the public  
22 protection is being relaxed greatly?

23 I mean, I think that's the whole comment about  
24 strontium-90, for example. You relax strontium 90 to TEDE and  
25 you make bone dose go away, you make bone marrow dose go away.

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1           And in regard to children I'd like to say you  
2 are currently and continuously in violation of the executive  
3 order on children. Since the late 1990s all agencies of the  
4 government are required to recognize that children are  
5 specially affected. So it doesn't matter that other parts of  
6 the rule haven't been changed. You are changing this rule and  
7 you are, in my opinion, while changing the rule, deliberately  
8 deciding not to include children and therefore, the --

9           And I would like to say for the record that in  
10 my opinion -- not a lawyer, I admit -- but deliberately  
11 deciding after we have said many times that the executive  
12 order on children requires you to do this, to continually  
13 ignore it. And not even to respond to it.

14           So I would like a response to two things. And  
15 then, you know, I will rest on this thing. But will the  
16 allowable doses to the public from classes of radionuclides  
17 go up if organ doses are dropped; and are you in compliance  
18 with the executive order on children currently and would you  
19 be if you decided not to include children in this rule change?  
20 And I really would like an answer to this in writing.

21           DR. ESH: The second part of your concern  
22 regarding the children doses, I can't address. It's out of  
23 my realm of expertise. But we understand it very well. And  
24 I'm sure we will address it in -- going forward in information  
25 we produce. Especially if you make the comment to us in the

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1 rulemaking process under the docket.

2 The other aspect regarding the organ  
3 doses -- and you said you wanted the answer. Well, what's  
4 going to happen? In some cases the organ doses would be higher  
5 than what you would estimate from the equivalent effect using  
6 the TEDE approach. In other cases it would be lower.

7 You're right. For some isotopes -- I think you  
8 noted uranium -- that's my understanding, too. But  
9 basically, the approach of the NRC has been as the  
10 health/physics community updates their models and  
11 methodology, generally given to the lag of the process with  
12 which government can keep up to speed with science, that we  
13 eventually update our requirements, processes, et cetera to  
14 be consistent with that.

15 So I know you have concerns about it. But I  
16 don't think those concerns necessarily should be directed at  
17 NRC when they are derived from the global health/physics  
18 community.

19 DR. MAKHIJANI: This is what I'm objecting to,  
20 Dr. Esh, is that they are not derived from the global  
21 health/physics community. I know what is going on in the  
22 health/physics community. I am a member of the  
23 Health/Physics Society. I do quite a lot of health/physics  
24 professionally. There is absolutely no basis to say that  
25 somehow we're modernizing the rule by dropping organ doses.

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1 Because TEDE is dependent on, first of all, calculating organ  
2 doses. You have no TEDE if you don't have organ doses.

3 And then you introduce these weighting factors  
4 which have changed over the last few decades and which will  
5 probably change again. I don't know that they will, but  
6 certainly they've changed in the past. So I do not believe  
7 that this appeal -- and moreover, I think you are quite wrong  
8 that if you have a 25 millirem limit for organ doses and for  
9 effective dose equivalent that in some cases you would have  
10 better protection under TEDE. I can tell you unequivocally  
11 you would not have better protection under TEDE dropping organ  
12 doses in any scenario. None.

13 DR. LESLIE: Okay. Arjun, I want to thank you  
14 for your comments. One of the actions I kind of put in the  
15 parking lot is, you know, we didn't bring everyone here today  
16 in terms of the health physics. But it's something we've  
17 noted.

18 And the other thing I got to remind folks right  
19 now is that we're not in rulemaking. And so at this point  
20 we're trying to gain the information necessary to develop the  
21 technical basis.

22 I think you've articulated some things that will  
23 allow the staff to fully flesh this out in terms of when they  
24 look at the implementation of the ICRP or addressing the  
25 Commission direction these are the types of things that go

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1 into developing what are the considerations to address the  
2 ICRP.

3 So I -- with that, Arjun, I -- I don't  
4 think -- they can't commit to responding to you in writing  
5 because we're not in rulemaking space. But I think you've  
6 been able to articulate fairly well some thoughts they need  
7 to address in terms of as they're thinking about this in the  
8 regulator basis as they develop that.

9 DR. MAKHIJANI: But the reason to get  
10 exercises -- you say the same thing again and again and you  
11 get no response and no change and there's no effort even to  
12 look up and make the least bit of effort to educate yourself.  
13 If Dr. Esh didn't understand FGR-13 he could have in the last  
14 three years looked it up and been better prepared to respond  
15 right now. I said the same things three years ago and I'm  
16 getting exactly the same response today. So it's kind of why  
17 have public comment if you don't intend to take into account  
18 or even have a technically accurate response for something  
19 that requires only ten minutes of arithmetic.

20 DR. ESH: I understand FGR-13 and I understand  
21 that organs are included in the TEDE calculation which you,  
22 in fact, admitted yourself after maintaining that moving away  
23 from organ doses we are not affording protection to organs  
24 anymore.

25 DR. MAKHIJANI: No, you are not. You

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1 are -- it's not a question of affording protection to organs.  
2 It's a question of whether your doses -- allowable doses would  
3 go up. Please don't misstate what I said.

4 DR. ESH: Well, that's fine.

5 DR. MAKHIJANI: I said that --

6 DR. ESH: You can --

7 DR. MAKHIJANI: -- you are relaxing protection  
8 to people in relation to a certain amount of radionuclides  
9 because the allowable doses from plutonium would go up if you  
10 dropped organ doses. That's a precise statement. You also  
11 said that TEDE would protect better in some cases but -- and  
12 not in other cases. And that's a completely wrong statement.

13 DR. LESLIE: Okay. Thank you. Thank you,  
14 Arjun.

15 DR. MAKHIJANI: Sure.

16 DR. LESLIE: One of the -- again, I put it on  
17 my tickler list in the parking lot to go back not only in this  
18 space but I think Dave brought up one point in terms of how  
19 we look in 10 CFR Part 20, as well. I know -- I think the staff  
20 is working on providing input on that potential comprehensive  
21 rulemaking, as well. And so I think that might be another  
22 place where the agency could consider it if that goes to  
23 rulemaking, as well.

24 Are there other comments on the phone?

25 THE OPERATOR: Not at this time, sir.

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1 DR. LESLIE: Okay.

2 Any other comments here in the room?

3 MR. PERSINKO: Let me just say something. This  
4 is Drew Persinko. One of the bullets Greg had on his slides  
5 for emerging issues was -- that was brought up somewhere in  
6 one of the previous meetings was the need for a -- revising  
7 the Environmental Impact Statement. I was just wondering if  
8 there were any comments on that that anybody wanted to  
9 provide.

10 DR. LESLIE: I've not seen anything.

11 Dan, do you? Oh, okay. No problem.

12 Anyway, so I think with that I'm -- we're going to give an  
13 opportunity -- oh, go to the next slide, Miguel, if you don't  
14 mind. Before we kind of wrap up the meeting I just want to  
15 give the opportunity to give the folks here in the audience  
16 and also on the phone one last time to kind of think about the  
17 totality of what they've heard today.

18 You know, the staff went through and we  
19 appreciate all of the input you've provided so far in the past  
20 meetings. And to the extent that you've amplified and  
21 provided a technical basis today or expanded upon your  
22 technical basis that's been, I think, helpful for the staff  
23 as they go forward.

24 Are there any other questions here or things  
25 that you've heard either in the morning or this afternoon that

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1 you want to take another bite at the apple, so to speak?

2 (No response.)

3 DR. LESLIE: Okay. Are there any additional  
4 comments on the phone?

5 THE OPERATOR: Yes. We do have one from Mike  
6 Lee.

7 DR. LEE: Hi. Yes. In the spirit of kind of  
8 winding things up I just wanted to go over a couple points very  
9 briefly. First of all, I know there's been a lot of support  
10 and discussion regarding the DOE 1000-year requirement for  
11 their performance assessment. But I think we all need to be  
12 reminded of the fact DOE's managing wastes under a slightly  
13 different paradigm.

14 And, Linda, if you're still on the phone, you  
15 can correct perhaps when no one else can, DOE.

16 There are approximately 144 or 150 sites in the  
17 DOE complex. I think over 100 will be -- remain in some kind  
18 of institutional control for well beyond the foreseeable  
19 future. And I noticed that we have a provision for repeating  
20 their performance assessment or at least evaluating it  
21 periodically.

22 Under Part 61 regulation it's not envisioned  
23 that the site's in perpetual care or institutional control.  
24 But in looking at how we define what a time of compliance might  
25 be we need to remember, or at least a reminder, that we're

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1 talking about two different systems. Under the Part 61 system  
2 I think it's positioned at some point the site be phased into  
3 what sites are to be past institutional control. And, you  
4 know, what happens? That remains to be seen.

5 The second point, I think, is that -- I think  
6 reference was made earlier that 10,000, 12,000 years ago Utah  
7 was under the sea. I don't think that's an accurate  
8 statement. I think there were some pervasive Pleistocene-age  
9 lakes around at the time but not -- it wasn't under the ocean.

10 As regards the 1000 calculation or 10,000 year  
11 calculation, what we haven't really talked about is the fact  
12 that in terms of geomorphic modeling and landscape evolution  
13 studies there has been work done in terms of looking at how  
14 you use numerical computer codes based on some simple physics  
15 to evaluate landscape evolution. And as we look at the 1000  
16 year modeling proposal you need to factor that in, as well.  
17 I don't believe that we have the right people here to do that  
18 today but that's something that perhaps we can look at in the  
19 future.

20 Last, it was referenced to the 100 years for the  
21 institutional control requirement of Part 61. And I think if  
22 the folks go back to the Federal Register notice for the final  
23 proposed rule in 1982, there's some discussion as to why the  
24 staff -- or the Commission -- excuse me -- selected 100  
25 years. I don't think it was necessarily capricious. I think

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1 it was more based on an assessment of the benefit margin of  
2 extending the performance institutional requirement from 100  
3 to 300 years. That's all I wanted to say. Thanks.

4 DR. LESLIE: Thank you, Mike.

5 Any others on the phone?

6 THE OPERATOR: Not at this time, sir.

7 DR. LESLIE: Okay. So what I've -- I'm going  
8 to ask Andrew to come to the microphone. This is right before  
9 we're going to have Drew kind of summarize some things. But  
10 I think it's important for -- you know, the Commission  
11 actually, in their recent SRM, as Drew said --

12 Come on up, all the way up front.

13 They outline four areas, stakeholder, process,  
14 you know, policy. I thought that was useful because there  
15 some comments earlier today, Well, when is the next time we're  
16 going to hear something. And, you know, Drew had made a  
17 comment about how they had done it before was slightly out of  
18 process.

19 I thought it was helpful to put up the slide  
20 again and have Andrew give a little explanation of what is  
21 the -- what are the next steps once he gets the input from the  
22 staff in September, having brought in all of the comments that  
23 you provided, both in these meetings and on the docket.

24 So, Andrew, can you --

25 MR. CARRERA: Thank you, Bret.

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1 Andrew Carrera of NRC. Just right before our  
2 lunch break Drew Persinko came to ask me if I can maybe  
3 elaborate a little bit on the NRC rulemaking process -- the  
4 normal NRC rulemaking process and how the staff has gone above  
5 and beyond that process to involve stakeholder and try to get  
6 involved stakeholder earlier in the rulemaking.

7 I'll start with the Administrative Procedure  
8 Act, I believe, of 1946 as amended. And what this act does  
9 is that it provides a framework for federal agencies on how  
10 they should operate their day-to-day business. And  
11 among -- within this act it's also include the rulemaking  
12 process for federal agency. And all it does is that it require  
13 federal agency, you know, after they develop a proposed rule  
14 they would publish proposed rule out for public comments in  
15 certain amount of days and then come take those comments back,  
16 analyze and address those comments in the final rule. And  
17 that was the normal NRC rulemaking process, as well.

18 And recognize that this -- the Part 61  
19 rulemaking, you know, it's -- it generate a lot of public  
20 interest. The Commission has directed the staff to allow the  
21 process to have an enhanced public participation future. And  
22 that's what the staff actually did with that.

23 In the previous iteration of this site-specific  
24 analysis rulemaking the staff has -- after we form a  
25 rulemaking working group we develop a preliminary proposed

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1 root language. We then publish on regulation.gov to  
2 receive -- to get public comments before the working group  
3 would finalize on a draft language. So in a sense we publish  
4 a draft of a draft of the proposed rule just to make sure that  
5 we address all the issues that the stakeholder would have.  
6 And that's -- you know, a lot of you were at that public  
7 meeting.

8 And once we receive those comments on the draft  
9 of the draft of the proposed rule the working group went back  
10 and made limited changes to the regulatory language and  
11 submitted forward, carried that language to the Commission as  
12 a, you know, proposed rule.

13 Unfortunately, we received different direction  
14 since then. However, in this coming iteration the -- you  
15 know, the staff plans to go through the same process, as well,  
16 in the sense that we're going to develop a -- you know,  
17 preliminary proposed rule language and we plan to publish on  
18 regulation.gov to get public comments, as well, before we  
19 finalize the proposed language and put forward for the  
20 Commission for consideration.

21 And once the Commission approves that proposed  
22 language we will publish it out for the official public  
23 comment period, where we receive comments. And as you see,  
24 we are in the top bar, in the top arrow we are currently in  
25 the first arrow box, where we receive comments to develop the

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1 technical basis. And I believe the technical basis will be  
2 somewhat finalized by September of 2012. And that's when I  
3 will take over and start the formal rulemaking process.

4 DR. LESLIE: So did that clarify when you might  
5 see something? Sorry. Lisa?

6 MS. EDWARDS: This is Lisa.

7 DR. LESLIE: Hold, while they confer. Okay.  
8 Go ahead, Lisa.

9 MS. EDWARDS: Did you say that a draft of the  
10 proposed rule would be put out or not? I couldn't --

11 MR. CARERRA: That's-- we haven't concrete  
12 set -- I haven't concretely set it, you know, put in the  
13 schedule format yet. But that's some of the things that I plan  
14 to do. I'm not committing to it right now. But it seems  
15 that --

16 MS. EDWARDS: It's a possibility.

17 MR. CARERRA: Yes. It's a possibility. And  
18 the Commission seems to favor, you know, get, you know, early  
19 public comments on that.

20 MS. EDWARDS: I hope it comes to fruition.

21 MR. PERSINKO: I have to say -- this is Drew  
22 Persinko. I mean, that's always a goal. Openness is always  
23 a goal of ours. But we are on a tight schedule to get this  
24 done by July. And I think what we're hearing is that we'd like  
25 to do that. I didn't -- I guess I just heard we're not

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1 committing to it because we're under a very tight schedule to  
2 get this done. But, of course, Andrew runs the rulemaking  
3 machine over there. And so we're providing the technical  
4 basis to Andrew. But --

5 MR. CAREERRA: Thank you for clarifying that.  
6 Almost got myself in trouble there.

7 DR. LESLIE: All right. Thank you, Andrew.  
8 That's helpful.

9 MR. CAREERRA: Thank you.

10 DR. LESLIE: Drew, do you have some final --

11 MR. PERSINKO: We up to that point already?

12 DR. LESLIE: I think so. I've asked on the  
13 phone. I've asked here. Maybe you'll surprise with more  
14 insights.

15 MR. PERSINKO: I hope not. Okay. First let me  
16 start by saying I heard Bret over there mention the name Larry  
17 Camper. Just want all of you whose eyesight is maybe failing  
18 or maybe the phones aren't working too well, my name is Drew  
19 Persinko, not Larry Camper. So my closing remarks are going  
20 to be different than what you might have heard if Larry was  
21 here.

22 Let me just try to walk through it. You know,  
23 as I started off in my opening remarks, I said that the purpose  
24 of the meeting was to obtain feedback on Part 61. And we did.  
25 I think we had a really good discussion actually. And, you

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1 know, one of my fears was that we would just repeat the meeting  
2 we did in Phoenix. I wanted to do more than that. I just  
3 didn't want to have another repetitive meeting here.

4 So we tried to bring something new to the table  
5 at this meeting that was not at the Phoenix meeting. For  
6 example, we had the crosswalk. We brought the crosswalk to  
7 the table. We had met with the Agreement States and we brought  
8 the Agreement State perspective to this meeting, which was not  
9 in Phoenix. So we also had feedback from the Phoenix meeting  
10 which we brought to here to help us start the discussion again,  
11 which was good.

12 Dave had brought into his discussion a period  
13 of performance. He brought some new ideas regarding  
14 international approaches and the screening approach. And we  
15 had some more specific questions regarding the Waste  
16 Acceptance Criteria. So we were trying to expand this meeting  
17 either in depth or in breadth than just -- than what we did  
18 in Phoenix. And we're going to try to do the same thing in  
19 July. Just hopefully, it won't be a repetition of this  
20 meeting. And I'll get to that in my closing remarks in a  
21 minute.

22 So let me try to just give a quick kind of  
23 highlight of what I think some of the big points I heard today  
24 were and if I do misstate it, please correct it.

25 But in the direction that we received from the

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1 Commission, the most recent direction, the January SRM  
2 concerning the flexibility on the ICRP dose methodologies, I  
3 think we again heard that there's continued general support  
4 for this flexibility, for including this flexibility in the  
5 rule. We heard information like we support the -- using the  
6 latest science. We also heard a little bit about expanding  
7 the rule to include the -- to update the tables for the dose  
8 conversion factors.

9 We also had some discussion about updating the  
10 performance assessments in light of changing ICRP  
11 methodologies. And we had a discussion there about how DOE  
12 does their process for updating PAs. And the thought was we  
13 would look at that. We may be able to include it in guidance  
14 as to some guidance on how to update performance assessments  
15 in light of changing ICRP methodologies.

16 On the subject of the 1000 pound gorilla in the  
17 room, the compliance period and the period of performance,  
18 which is always a lively part of the meeting, what we had was  
19 a -- like I said, Dave brought some new ideas to the table,  
20 the international approach, maybe a screening approach. But  
21 I think, you know, we discussed that. But I think it also then  
22 sort of gravitated back to what's the number. And I think we  
23 again heard -- we heard -- we had -- heard support for 1000  
24 years. I think we also heard support for 10,000 years.

25 We had information -- we tried to pursue why

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1 more in this meeting than we did in previous meetings. Why?  
2 Why is that being put forward? And I think what I heard for  
3 the 10,000 years was public confidence. That was put forward  
4 as a -- as one reason for maintaining 10,000. One thousand  
5 years, the basis for that was it would be consistent with the  
6 way DOE does their approach. And a lot of the waste is DOE  
7 waste.

8 So we have two different time periods here put  
9 forth on the table. And it sort of parallels what we heard  
10 previously. But I think we have maybe some more meat on the  
11 bone as to why now. It doesn't answer the question. But we  
12 still have some more meat on the bones.

13 And I think we also heard -- well, maybe we ought to separate  
14 out depleted uranium. We heard that today.

15 We had a discussion about the DOE approach.  
16 1000 years. But then also, in addition to the 1000 years  
17 compliance period we had the idea that a risk perspective was  
18 also provided to it if the dose came out to be greater than  
19 25 millirem. And we had quite a bit of discussion about that  
20 and whether it was a requirement in DOE Order 435.1 or is it  
21 simply a DOE standard practice.

22 We also -- on the topic of period of performance  
23 it was put forth that we maybe should compare the disposal  
24 under Part 20 to gain insights for the period of performance.  
25 Mr. Seitz said that. We also talked about international

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1 approaches and I think we heard, Don't just rely on numbers.  
2 And we didn't rely on numbers because there's a lot of things  
3 built into the approach in the international world that may  
4 not be so obvious at first glance. And we also heard from the  
5 public that DOE should not be disposed of in a near surface  
6 facility. We also heard that.

7 For the waste -- DU. What did I say?

8 VOICE: You said DOE.

9 MR. PERSINKO: Sorry about that. I didn't mean  
10 to get a laugh out of that. Sorry about that, DOE, if you're  
11 still on the phone.

12 DU should not be disposed of. My eyesight's  
13 not doing too good these days. DU should not be disposed of  
14 in a near-surface facility. For the Waste Acceptance  
15 Criteria we had general support again for the Waste Acceptance  
16 Criteria. And the Agreement States weighed in this time which  
17 we didn't have in Phoenix. They generally support it but as  
18 you heard, they do have some reservations about it, too, and  
19 some issues with it. So that's something that needs to be  
20 considered.

21 We also heard that regarding the Waste  
22 Acceptance Criteria we might want to start off with using  
23 NUREG-1854 as a good place to start. As far as compatibility  
24 is concerned, some of the things we heard were flexibility is  
25 important but we need consistency with respect to technical

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1 standards. We also heard that the ability of states to be more  
2 restrictive should be retained, that the NRC should not  
3 require strict compatibility.

4 And we also heard that the classification of "C"  
5 should be retained for the WAC -- or should not -- concern  
6 about the compatibility category of "C" for a WAC and that it  
7 was put forth by one participant that the WAC should be a  
8 compatibility "A" or "B" so the states need to allow the WAC  
9 to be permitted in their states.

10 Some other things we heard beyond this afternoon  
11 concerning Greg's discussions, we heard some other topics in  
12 the emerging technical issues. I think we've heard some of  
13 these before. But I think this time we had a better  
14 explanation as to why this would be included and why this is  
15 being put forth. We heard about the Phantom Four  
16 radionuclides again, that this would be -- it's creating  
17 difficulties. And we suggested also -- we suggested that  
18 maybe a way to address this short of rulemaking might be to  
19 look at the TER that the staff wrote in -- back in 1995.

20 We heard that the institutional controls should  
21 be looked at to be extended from 100 to 300 years for various  
22 reasons that Lisa Edwards explained. We also heard that the  
23 dose conversion factors -- we should -- it was recommended  
24 that we update the waste classification tables to incorporate  
25 the latest dose conversion factors.

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1           Let's see. And then we also committed that we  
2 would -- there was quite a bit of discussion concerning the  
3 TEDE dose versus organ dose. And there were some -- two  
4 questions put on the table by Arjun. And we will consider those  
5 questions as we develop the rule and we will respond to the  
6 questions put forward at the meeting.

7           We were also asked a question, "Are we or are  
8 we not going to do a more comprehensive rule?" All I can say  
9 is right now it's still on our plate. The Commission has not  
10 told us to not do it. In fact, they have told us in the latest  
11 January SRM that we should continue to pursue our efforts in  
12 SECY-10-0165. I mean, Commission could change their  
13 direction at any time they feel like. But right now the most  
14 recent direction we have as of January is that we should  
15 continue our efforts in the comprehensive rulemaking, the  
16 SECY-10-0165 area.

17           With respect to our path forward, I mean, we will  
18 be at some point informing the Commission one way or another  
19 about what we've heard at these meetings and the desire to  
20 include some additional information into it. But right now  
21 our direction per the January SRM is to stick with the four  
22 items that were in the SRM.

23           And like I said, though, that could always  
24 change. The Commission could change their direction at any  
25 point that they want to. I would say, though, that if it

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1 wasn't included in this rulemaking and the future rule, the  
2 SECY-10-0165 comprehensive rule is going forward that those  
3 kind of issues would then be considered in the future -- in  
4 the future rule.

5 Let's see. The next meeting is July 19 on Part  
6 61 revision. Our third and last meeting on the subject would  
7 be July 19 in Rockville, Maryland. We're hoping to change the  
8 format for that meeting so that it's not give us your comments  
9 on the transcript and we have that. We're hoping that we can  
10 make that into more of a round table discussion. And that's  
11 what we're pursuing right now, as trying to set up the format  
12 a little differently to have various groups represented at  
13 that -- on the round table.

14 But if you attend the July 19 meeting you  
15 actually get two for one. See, because it's a special that  
16 day. Because we're also planning to hold the July -- the  
17 concentration averaging BTP meeting public comments on -- to  
18 discuss the BTP on July 18. So if you come to the BTP meeting  
19 you get two for one that particular month.

20 And that's really all I have in the summary.  
21 That -- I was trying to take notes as to the -- what was said  
22 and then try to pick out -- sift out what the higher messages  
23 were. And that's what I came up with.

24 So what I'd like to do is thank everybody for  
25 attending in person and thank you for attending by phone. It

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1 was -- I think it went well, actually with the phone and the  
2 in-person attending, as well as the phone -- the bridge line.  
3 I think that worked well. So with that I'd like to thank  
4 everybody for attending.

5 Well, okay. Hot news right off the press, as  
6 we speak. I wish I knew that ahead of time. More to come on  
7 the July 18 BTP meeting. We were trying to have it on July  
8 18. What I was just told is it may not happen. And so maybe  
9 the special, the blue-eye special's off. I don't know. But  
10 that's where we are. But we definitely will have the July 19  
11 meeting on Part 61.

12 So with that, I'd like to thank everybody  
13 attending in person or by phone. Thank you very much.

14 DR. LESLIE: And, Drew, I would like to thank  
15 the staff. I think they came fairly well prepared today.  
16 Well, and management, too. Staff and management.

17 And kind of one of the reminders again, from a  
18 facilitator's standpoint this was a very useful meeting. I  
19 didn't have to cry like a little boy and say, Why, why, why.  
20 People were pretty good with that.

21 The staff will post the transcript and a meeting  
22 summary afterwards on the low-level waste disposal site,  
23 site-specific rulemaking area. And also, just a reminder  
24 that, you know, as you go back and have heard things people  
25 can and should submit written comments to

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1 www.regulations.gov, and if you do, to the docket number which  
2 is NRC-2011-0012. That would be greatly appreciated.

3 And with that, we'll close the meeting. And  
4 thank you all for your participation.

5 (Whereupon, at 2:50 p.m., the meeting was  
6 concluded.)

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