

# **Official Transcript of Proceedings**

## **NUCLEAR REGULATORY COMMISSION**

Title:                   Public Meeting on the Proposed Low-level  
                              Radioactive Waste Disposal Rulemaking

Docket Number:     (n/a)

Location:            Austin, Texas

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Pages 1-142

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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PUBLIC MEETING ON THE PROPOSED  
LOW-LEVEL RADIOACTIVE WASTE  
DISPOSAL RULEMAKING

+ + + + +

Tuesday, May 12, 2015

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Courtyard by Marriott  
300 East 4th Street  
Austin, Texas

6:00 p.m.

BEFORE:

CHIP CAMERON, Moderator

A G E N D A

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P R O C E E D I N G S

MR. CAMERON: Good evening, everyone. This is the call leader; my name's Chip Cameron, and I'm also going to serve as your facilitator for the meeting tonight.

Our topic for the meeting is the NRC, Nuclear Regulatory Commission, proposed rulemaking on the disposal of low-level radioactive waste. And as your facilitator, I'm going to try to help all of you to have a productive meeting tonight, and we're going to try to avoid acronyms, but one that you will hear is NRC, for Nuclear Regulatory Commission.

And I'd just like to go over some meeting process issues with you, so that you know what to expect, and I'd like to talk about the objectives for the meeting, format for the meeting, the ground rules for the meeting, and then to introduce the NRC staff who are up at the table, who will be talking to you and answering questions.

And objectives: First objective is to present clear information to you on what is in the proposed rule, the structure of the proposed rule but also the rulemaking process and, in line with that, to try to give good answers to any questions that you might have.

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1           Second objective is to listen to your  
2           comments, your concerns, your recommendations on  
3           anything that's in the proposed rule.

4           And the NRC is also taking written comments,  
5           and Steve Dembek, from the NRC staff, will tell you  
6           about that in a few minutes. But anything that you say  
7           tonight, any comments that you offer, will be  
8           considered formal comments. They will be on the  
9           record.

10           We have Penny with us tonight who's our court  
11           reporter and stenographer. She's taking a transcript,  
12           and that will be your record of the meeting. It will  
13           be NRC's record of the meeting, and it will be publicly  
14           available.

15           And any comments that you give tonight carry  
16           the same weight as a written comment, and you're free  
17           to amplify on what you say tonight by submitting a  
18           written comment to the agency.

19           And just a note on this is that a lot of times  
20           when the NRC does formal comment meetings, the question  
21           part of the meeting is separate from the comment part,  
22           and usually all the NRC presentations are given at the  
23           beginning.

24           We're going to do it a little bit differently  
25           tonight. We're going to segment that, and we'll go out

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1 to you after each part of the agenda, to see if you have  
2 questions or comments, and when Dave Esh does his  
3 presentation, you'll see from his slides that he's  
4 going to break up his presentation into segments, and  
5 we'll be going out to you for comments and questions.

6 If you do have a comment, the NRC is not going  
7 to be engaging in a dialog with you on the comment.  
8 They'll be listening carefully to the comment, and they  
9 will evaluate those comments when they prepare the  
10 final rule.

11 But of course, with questions there will be  
12 answers to those questions, and I'll be bringing the  
13 mic to you who have questions or comments, and you can  
14 use this to make your comments and ask your questions.

15 Ground rules: Very simple; signal me when  
16 we get to a question, comment, discussion period, and  
17 just please introduce yourself for Penny's benefit, so  
18 she'll know who's talking.

19 And we will be going -- we have people on by  
20 phone, otherwise we wouldn't need a call leader, but  
21 we do have a call leader tonight, so we will be going  
22 to the people on the phone.

23 And also there's people on the webinar who  
24 may submit questions, so we'll go to the audience, we'll  
25 try the phones, we'll go to the webinar, and for those

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1 of you who are on the phones, I'll ask you to introduce  
2 yourself also.

3 I'm not going to set a time limit to time you  
4 on how long you're going to be talking, because I think  
5 we have enough time. But I will be watching it so that  
6 we can make sure that we get to everybody here and on  
7 the phones who might have a question or a comment, and  
8 so I may have to ask you to summarize and be brief.

9 So I would ask you to be brief, and that also  
10 applies to the NRC staff, too, to try to be concise in  
11 their comments. And with that, let me introduce the  
12 speakers.

13 We're going to start with Larry Camper, and  
14 Larry is the director of the Division of  
15 Decommissioning, Uranium Recovery, and Waste Programs  
16 at the NRC in our Office of Nuclear Material Safety and  
17 Safeguards.

18 We're then going to go to Steve Dembek, who  
19 is in Larry's division, and he's going to talk to you  
20 about the rulemaking process, and we'll have time for  
21 questions after Larry, time for questions after Steve.

22 Then we're going to go and get into the  
23 substance, the heart of the proposed rule. We're going  
24 to go to Dave Esh, and Dave will go through some slides,  
25 and that will be broken into segments, and we'll go on

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1 to you.

2 And we also have Chris McKenney. Everybody  
3 works for Larry, although they're in different  
4 branches, I think, and Chris is here to help answer  
5 questions, I believe, on that.

6 And what, Larry, are you ready? And I just  
7 thank you all for being here to help with this project.

8 MR. CAMPER: Thank you, Call Leader.

9 Welcome, everyone. It's a pleasure to see  
10 all of you here tonight. Thanks for coming out and  
11 taking time to be with us during this important process.

12 This is our third meeting about this  
13 particular rulemaking. We actually had one in Phoenix  
14 following the Waste Management Symposia Conference,  
15 and then we had one on the 28th of April, I think it  
16 was, back at headquarters, so this is our third.

17 We wanted to come to Texas because of the WCS  
18 site, obviously, and we will be going and having  
19 meetings in each of the four states where the commercial  
20 operating facilities are currently in existence.

21 There are a set of slides for my talk. I do  
22 encourage you, if you haven't it, to please pick one  
23 up, because there's an extensive amount of background  
24 in there that I covered in some detail during the  
25 meeting at headquarters on the 28th of April. I'm not

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1 going to go through all that tonight, in the interest  
2 of our timeframe.

3 But you can always go back and look at that  
4 transcript, because I made it a point, because we had  
5 a panel, to try to give the panel and everyone listening  
6 the complete story, if you will. And there's been a  
7 tremendous amount of Commission interaction around  
8 this rulemaking. So do pick that up and take a look  
9 at it.

10 Next slide. Well, in terms of the  
11 objective, it's to give the opportunity for us to  
12 discuss the proposed revisions to the Commission's  
13 low-level radioactive waste rules that are set forth  
14 in 10 CFR Part 61. These are our disposal regulations,  
15 and we do encourage stakeholders such as yourselves and  
16 those listening in to submit comments using the very  
17 methods that Steve will describe during his  
18 presentation, because he will follow me and discuss  
19 with you the process that may be used for providing  
20 comments.

21 As Chip said, you're on the record tonight.  
22 Staff will review the discussion tonight, but we also  
23 encourage you to submit those written comments so they  
24 may be binned and categorized and reacted to  
25 thoroughly.

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1 Dr. Dave Esh of our staff will present the  
2 proposed to the Part 61 rulemaking, and he'll go through  
3 in some detail the various technical aspects that are  
4 being changed in the regulation and then afford an  
5 opportunity, following each of the segments, for you  
6 to ask questions and provide comments and so forth.

7 And Dr. Esh, along with others, has been  
8 actively involved in this process since we started, and  
9 Chris McKenney, the branch chief of Performance  
10 Assessment Branch ever since we started this, way back  
11 in 2006, following Commission direction, so we've been  
12 at it quite a while.

13 Next slide: So why are we doing the  
14 rulemaking? Well, first, let me say it's important to  
15 get on the record for everyone -- some of you follow  
16 this more than others, but for members of the public  
17 in general, I think it's important that you understand  
18 we believe the existing Part 61 is in fact adequate to  
19 protect public health and safety.

20 And in addition to that assurance that the  
21 regulation provides, over the years the operational  
22 realities of what the current operators have done on  
23 a day-to-day basis go far beyond the requirements of  
24 Part 61.

25 So we're quite confident that Part 61 today

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1 is adequate to protect public health and safety;  
2 however, things have changed, and there's a need to  
3 revisit the part in current terms, and we want to make  
4 sure that applicants and active licensees ensure that  
5 low-level waste streams that are significantly  
6 different from those waste streams that were analyzed  
7 when Part 61 was created, way back in the 1979 and 1982  
8 timeframe, are in fact addressed. And I'll cover a  
9 couple of those in more detail.

10 Next slide. All right. When you get a  
11 chance to look at that package of background slides,  
12 you may have some questions, and you may certainly feel  
13 free to contact us if you do.

14 But I wanted to do in this slide was try to  
15 sum up all of that with some context. And again I know  
16 that many of you have followed this more than others,  
17 and many of you have actually taken part in public  
18 meetings. Some of you are seeing this for the first  
19 time, so a little context is important.

20 This rulemaking actually grew out of an  
21 adjudicatory proceeding that took place regarding the  
22 Louisiana Energy Services license application back in  
23 2005.

24 The Commission, following that adjudicatory  
25 process, gave the staff a staff requirements

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1 memorandum, an SRM, and directed the staff that,  
2 outside of that adjudicatory process, to examine  
3 whether the regulations in Part 61 wanted modification  
4 to address the disposal of large quantities of depleted  
5 uranium that would come from or were forecast to come  
6 from enrichments activities.

7 So the staff undertook an analysis. So in  
8 the beginning it was all about depleted uranium, but  
9 as you shall see, it morphed a bit over time. So the  
10 staff undertook an analysis at that time. And what I  
11 asked the staff was to conduct an analysis to determine  
12 whether or not we believe that large quantities of  
13 depleted uranium were in fact suitable for near-surface  
14 disposal.

15 We took that as our starting point because  
16 one of the contentions that was filed during the LES  
17 proceeding was that depleted uranium was not suitable  
18 for near-surface disposal.

19 However, we knew that in 2000 -- the year  
20 2000, the Department of Energy had undertaken a rather  
21 extensive programmatic Environmental Impact  
22 Statement. It evaluated the disposal of four forms of  
23 depleted uranium in a near-surface capacity and  
24 determined that it was suitable for near-surface  
25 disposal.

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1           Our analysis showed us that it was as well,  
2           albeit under certain conditions.     For example:  
3           deeper, other mitigating ways of addressing the  
4           particular waste category, more robust radon barrier,  
5           and so forth.

6           But along the way, when we were doing that  
7           analysis, we also recognized that there were other  
8           issues that emerged over time that we needed to address,  
9           and so we wanted to make sure we took an approach in  
10          this rulemaking that would try to address those other  
11          issues and, for that matter, try to address any other  
12          waste streams that might come along, rather than  
13          continuously revising this regulation.

14          There was considerable Commission  
15          direction. The staff put out its version of the draft  
16          language, I think at least twice, if not three times.  
17          We had several public meetings. We got several rounds  
18          of Commission direction, and all the direction is in  
19          the background slides.

20          So it's certainly fair to say that there has  
21          been substantial Commission direction, and if you look  
22          at that background, rather specific direction, in many  
23          cases, which the staff has worked to capture within this  
24          proposed rulemaking.

25          We do have the proposed rulemaking; we got

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1 that published back in March. And we have a 120-day  
2 comment period, and then we'll work with the Commission  
3 to go back with a final rule and any changes that the  
4 Commission directs us to make over the next year or so.

5 Compatibility is a fairly significant issue  
6 in this rulemaking. Most of you know, I believe, that  
7 compatibility has to do with the relationship that  
8 exists between the Nuclear Regulatory Commission and  
9 its agreement states.

10 And various levels of compatibility are  
11 assigned, which is a matter of how precisely the  
12 Commission wants the language in a given rule to be  
13 replicated by the agreement states.

14 Now, there's a Category B, and in this  
15 particular rulemaking, the Commission directed that  
16 all significant components of this rulemaking would be  
17 Category B, which means it has to be essentially the  
18 same.

19 That's very important to the agreement  
20 states, and we've already heard some comments from some  
21 of the agreement states that are operating these sites,  
22 and we'll hear more throughout the process.

23 So compatibility is a fairly significant  
24 component of this rulemaking, and I do encourage you,  
25 when you look through the draft rule, there's a table

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1 in there, in the FRN that we put out, that shows what  
2 the compatibility level was and what it is now in the  
3 proposed rule, so it's important to take a look at that.

4 Agreement state applicability: I'll have a  
5 slide or two in a moment that will take this issue on  
6 squarely. The approach that's being used in this  
7 rulemaking is a little bit different in terms of  
8 applicability to the agreement states, as was the case  
9 in 1982, and there are some very specific reasons for  
10 that, and I'll share those with you in a moment in a  
11 slide.

12 And last but not least, there's an  
13 outstanding issue. The Commission along the  
14 way -- when we were given the direction coming out of  
15 our SECY-08-0147 and the subsequent staff requirements  
16 memorandum, the Commission agreed with the staff's  
17 recommendation that we would proceed with a  
18 site-specific rulemaking to look at this question of  
19 the disposal of large quantities of depleted uranium  
20 and other unanalyzed waste streams.

21 But the Commission also, at that time,  
22 charged the staff with looking at modernizing and  
23 risk-informing the waste classification tables,  
24 including determining what class of waste depleted  
25 uranium is.

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1           Now, that assignment is still out that,  
2           although it's been modified by the Commission during  
3           several SRMs that you have in your packet, but that  
4           issue is still out there, and at some point, as we work  
5           our way through this, we're going to circle back to that  
6           issue, but the Commission's been very clear: It wants  
7           this rulemaking finished before the staff does that,  
8           and you can see their specific words in the slides.

9           So we're going -- we have interest in getting  
10          comments about whether or not there's a sense that  
11          there's another rulemaking needed to address the  
12          specific classification of depleted uranium, given  
13          that an overarching approach is embodied within this  
14          regulation that would address depleted uranium or any  
15          other waste stream, based upon the site-specific  
16          performance assessment conditions of a given site.

17          Next slide: This particular slide contains  
18          language that is set forth in the current regulation  
19          of 61.1(a). I would draw your attention to about  
20          halfway or so down the paragraphs, starting with the  
21          words "Applicability of the requirements in this part  
22          to Commission licensees for waste disposal facilities  
23          in effect on the effective date of this rule will be  
24          determined on a case-by-case basis and implemented  
25          through terms and conditions of the license or by orders

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1 issued by the Commission."

2 The reason the Commission chose to do that  
3 way back in 1982 is because there were already sites  
4 that were existing, had been sited, and many of the  
5 siting criteria had already been satisfied before this  
6 rule became effective.

7 And so the Commission recognized that, so it  
8 wanted to set up some flexibility for addressing the  
9 states that had the operating sites -- South Carolina  
10 comes to mind, for example; Washington -- that would  
11 allow some flexibility how that would be implemented.

12 Turns out that all of the agreement states  
13 that had the operating sites at that time adopted the  
14 Part 61 regulations pretty much in whole cloth by 1988  
15 and satisfied the compatibility associated with it.

16 Next slide, please. That's different this  
17 time, because in the FRN we point out that the proposed  
18 rule would affect existing and future low-level  
19 radioactive disposal facilities that are regulated by  
20 the NRC or an agreement state.

21 In other words, this rule affects those  
22 operating facilities in those agreement states upon its  
23 implementation as subsequently implemented following  
24 the time line allowed for agreement states to implement  
25 the regulation, which is three years.

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1           So that's a different -- that has caused some  
2           concern, in one of the states in particular. We heard  
3           some comments about that during the public meeting back  
4           in April, and I'm sure we'll see some written comments  
5           on it as well, but I do draw your attention to that  
6           difference and the basis for that difference.

7           Next slide. So I mentioned in my context  
8           slide that we started off looking at large quantities  
9           of depleted uranium, and along the way we had a  
10          realization that there were other things that needed  
11          to be addressed.

12          What you see here on this slide are the things  
13          that the staff looked at and said we really do need to  
14          address in this rulemaking:

15          Obviously depleted uranium, especially from  
16          enrichment facilities. When we did our analysis for  
17          depleted uranium, we knew that there was somewhere on  
18          the order of 700,000 metric tons of depleted uranium  
19          on the pad in cylinders at Portsmouth and Paducah.

20          We knew that there would be additional DU  
21          generated over the life of operational enrichment  
22          facilities that had been or would be licensed. In our  
23          analysis we considered in excess of 1 million metric  
24          tons. There was a lot of depleted uranium to be  
25          addressed.

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1           Now, will it become waste, when it becomes  
2 waste, that's always the question that's driven, to a  
3 large degree, by the price of uranium. If you go  
4 overseas, if you go to Europe, for example, and you talk  
5 to them about depleted uranium as waste, they'll look  
6 at you and say, What waste? It's an asset.

7           So there's a recognition that that's a  
8 variable, but the point is there's a lot of it, so we  
9 knew that, and so we had to address it per Commission  
10 direction.

11           There's far more low-level waste from DOE  
12 operations than was envisioned when Part 61 was created  
13 back between 1979 and 1982. There's waste forms and  
14 volumes that were not anticipated or analyzed at the  
15 time that Part 61 was created.

16           Blended waste has come along in the last few  
17 years. Blended waste is waste whereby Class A, Class  
18 B, Class C are blended down to concentrations that are  
19 Class A that may be disposed of as Class A, and so this  
20 rule does address that issue.

21           And then there might be new technologies that  
22 will emerge that we wanted to make sure we tried to  
23 address in a blanket approach in this rulemaking; for  
24 example, waste streams coming from fuel reprocessing,  
25 as an example; and others to be determined.

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1           We didn't want to keep going back and having  
2           to do a rule every time, so the staff thought that  
3           utilizing a site-specific approach would thoroughly  
4           analyze whatever waste stream is supposed to go in a  
5           particular disposal facility.

6           Next slide. My last slide, this just shows  
7           you the meetings that we have had or will be having. We  
8           did have a meeting, as I said, in Phoenix, Arizona,  
9           following the WM Symposia. We had one in Rockville on  
10          the 28th of April; of course, tonight here in Austin.  
11          We're going to have a webinar on May 20; a meeting in  
12          Columbia, South Carolina, on June 2; in Richland,  
13          Washington, on June 9; in Salt Lake City on June 10, and  
14          then there will be some post-rulemaking actions  
15          specifically to address this question of should there  
16          be another rulemaking.

17          We recognize that people -- we're asking for  
18          comments during the course of this rulemaking, but we  
19          also recognize that people will want to see the final  
20          rule to be able to fully comment upon that thoroughly,  
21          so there will be some additional action the staff will  
22          take following this rulemaking to address that  
23          outstanding charge from the Commission.

24          So, Call Leader, I'll stop there, and are  
25          there any questions?

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1 MR. CAMERON: Thank you, Larry.

2 Are there any overarching questions for  
3 Larry? We are going to get into a lot of the details  
4 of what he talked about, but any overarching questions  
5 before we go on to Steve for the process?

6 (No response.)

7 MR. CAMERON: Okay. None here.

8 Okay, Joe, just to test the system out here,  
9 can you see if anybody on the phone has any questions  
10 for Mr. Camper?

11 OPERATOR: If you'd like to ask a question,  
12 dial \*1 on your phone and record your name clearly at  
13 the prompt.

14 (No response.)

15 MR. CAMERON: Okay. Thanks, Joe.

16 OPERATOR: There's one come in. This  
17 question is from Diane.

18 MR. CAMERON: And, Diane, could you just  
19 introduce yourself, full name, to us, please.

20 MS. D'ARRIGO: Diane D'Arrigo, Nuclear  
21 Information and Resource Service.

22 MR. CAMERON: Go ahead, Diane.

23 MS. D'ARRIGO: Well, first of all, the voices  
24 on the phone are fading in and out. I don't know if  
25 other people on the phone are having that problem, but

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1 I've been trying to be able to hear, and it's really  
2 difficult. So if there's some way to fix that, that  
3 would be good.

4 And then my other question is -- well, I guess  
5 the other question's going to be more technical, so I'll  
6 wait until after the technical presentation.

7 MR. CAMERON: Okay. Thanks, Diane, for both  
8 of those. And we'll see if we can fix that; we will fix  
9 it. And if people are still having problems hearing,  
10 please tell us.

11 We're going to go to Steve Dembek now.

12 MS. D'ARRIGO: How do we tell you?

13 MR. CAMERON: I'll go back out on the phones  
14 during Steve's presentation and check in with you again  
15 to see if it's better. Okay?

16 MS. D'ARRIGO: Okay.

17 MR. CAMERON: And you can also -- if anybody  
18 is on the webinar, you can notify us through the webinar,  
19 saying that, We still can't hear you out here.

20 MS. D'ARRIGO: I don't think anyone's  
21 monitoring that, because I did it four times, and I  
22 didn't get any response.

23 MR. CAMERON: Okay. Well, we do have  
24 someone here, but let's go to Steve, and we'll stop  
25 halfway through Steve's to see if there's still a

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1 problem. Okay, Diane?

2 MS. D'ARRIGO: Uh-huh.

3 MR. CAMERON: All right.

4 And Steve Dembek's going to talk about the  
5 rulemaking process and comment submittal.

6 And I think what we're going to have to do,  
7 to make sure that people hear who are on the phones, is  
8 just to really speak closely into the microphone when  
9 you have it. Okay.

10 MR. DEMBEK: Yes. Hi. Steve Dembek,  
11 project manager in Office of Nuclear Materials Safety  
12 and Safeguards.

13 Next slide. Today I'm going to be going over  
14 the key aspects of the rulemaking process for the Part  
15 61 proposed rule, and later one Dave Esh, as mentioned  
16 by a couple of others, will provide specifics on the  
17 technical content of the proposed rule itself.

18 I plan to explain why we do rulemakings, the  
19 status and time line for this particular rulemaking, and  
20 how you can submit comments on the proposed rule, and  
21 the draft guidance document that has also been issued  
22 for public comment.

23 MR. CAMERON: Steve, I apologize for this,  
24 but I want to check with Diane, and I think that people  
25 who come up here to speak are probably going to have to

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1 be closer to this microphone.

2 Joe, can you put Diane on to see if the problem  
3 has been cleared up.

4 OPERATOR: I kept her on the line for you.

5 MS. D'ARRIGO: Steve's loud and clear.

6 MR. CAMERON: Great. Okay. Thanks, Diane.

7 MS. D'ARRIGO: Thank you.

8 MR. CAMERON: Okay, Steve.

9 MR. DEMBEK: Okay. Good. So why  
10 rulemaking? Rulemaking is one way in which the  
11 Commission's policy is implemented. Long term, it is  
12 the Commission's policy to regulate through the  
13 development of rules and not to regulate by orders or  
14 license conditions or other means.

15 Rulemaking makes requirements generally  
16 applicable to everyone, whereas an order or a license  
17 condition only apply to the entity that receives the  
18 order or the license condition. So the preferred way  
19 to make changes in policy is through rulemaking.

20 Rulemaking is also a public process. It  
21 provides for stakeholder involvement by providing a  
22 defined period for public comment, which is what we're  
23 in right now, and as it is a public process, please  
24 remember any comment you make is going to be publicly  
25 available to everyone else. It'll be eventually posted

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1 on our website, and it will be posted on  
2 regulations.gov. I'll get into a little bit more of  
3 that in a minute.

4 What do we do when we develop these rules?  
5 Larry talked about some of the specifics for this  
6 particular rule. I'm going to just talk about more in  
7 general.

8 In developing a proposed rule, we consider  
9 recent research, lessons learned from implementation of  
10 the current regulations, issues we identify through  
11 inspection of existing licensed facilities,  
12 recommendation from advisory bodies, information  
13 included in any petitions for rulemaking. And we also  
14 consider stakeholder input that we receive during  
15 development of the rule, and any input received on  
16 preliminary rule language is also considered.

17 All of these aspects are considered in the  
18 development of a proposed rule, and these aspects will  
19 also be considered when we develop the final rule, so  
20 that's where you come in. We're soliciting public  
21 comments now so we can consider that before we make our  
22 final rule.

23 Next slide. Regarding the time line for this  
24 particular rulemaking, the proposed rule was published  
25 in the *Federal Register* March 26, 2015, and we are

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1        requesting public comments on the proposed rule  
2        language.

3                The public comment period will last 120 days,  
4        so that 120-day end date is July 24. The final rule is  
5        then expected to be sent to the Commission for their  
6        review and approval approximately 12 months after the  
7        comment period closes, but the exact timing will be  
8        based upon the number and the complexity of the comments  
9        we receive.

10              This is where you come in: The more clearly  
11        you can state your concern and any supporting  
12        information you can provide in any comment you give us  
13        will make your comments more effective and will make the  
14        whole process more efficient.

15              Now, presuming the process stays on schedule,  
16        we would expect the final rule to be sent to the  
17        Commission in July of 2016, and the final rule would  
18        likely be published in the *Federal Register* a few months  
19        after that, perhaps late summer or fall timeframe of  
20        2016.

21              The final rule will then be effective one year  
22        after its publication and any licensee or applicant in  
23        a nonagreement state would need to begin meeting the  
24        requirements at that time.

25              For those facilities licensed by agreement

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1 states, the agreement states will have three years to  
2 develop compatible regulations.

3 Next slide, please. This slide provides the  
4 various methods for submitting comments on the proposed  
5 rule. These are specific to the proposed rule.

6 I'm not going to go through all the methods  
7 in detail here, because they are listed in the *Federal*  
8 *Register* notice, and they are listed in the handouts,  
9 but I do want to highlight a few key points.

10 First, the docket number is very important.  
11 The docket number has to be mentioned on your comment:  
12 NRC-2011-0012. And then I'll just briefly go into the  
13 four methods you can submit comments.

14 You can go to the rulemaking website; this is  
15 the federal government-wide rulemaking website:  
16 [www.regulations.gov](http://www.regulations.gov). And search for documents filed  
17 under that docket ID; once again, NRC-2011-0012.

18 You can mail comments. There's a specific  
19 address there. You can email comments; again, a  
20 specific address. You can hand-deliver comments to the  
21 NRC building, or you can fax comments; once again, the  
22 specific fax number.

23 Again, if you choose to provide comments, it  
24 is more helpful if you explain why a provision is a  
25 problem, rather than just noting that you are opposed

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1 to something in the regulation. A good rationale  
2 behind your comment will be very helpful to us.

3 You are encouraged to submit formal comments  
4 for the record using the methods described in the slide.  
5 As mentioned previously, though, we are going to go  
6 through the transcript here and look for comments that  
7 are brought up by people here and people on the phone.

8 And as a reminder, since the rulemaking is a  
9 public process, all the comments we receive will be made  
10 publicly available. All the transcripts we have are  
11 going to be made publicly available.

12 If you've been looking at our website, you'll  
13 see we've already added some transcripts, and we'll  
14 continue to do that throughout the process.

15 Next slide. Now I'm going to shift to the  
16 guidance document. This is the Part 61 guidance  
17 document. It's called Draft NUREG 2175; the title's  
18 there: Guidance for Conducting Technical Analyses for  
19 10 CFR Part 61.

20 And the *Federal Register* notice requesting  
21 comments on the guidance document was also issued on  
22 March 26, 2015, and what the guidance document does is  
23 it provides detailed information on the rules  
24 provisions. It'll help those implementing the rule to  
25 implement the rule in appropriate fashion.

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1           The guidance document also has a 120-day  
2           comment period, so comments on the guidance document  
3           are, again, due July 24, 2015. I encourage you to also  
4           look at the guidance document and provide comments on  
5           it and not just on the proposed rule.

6           We expect to finalize the guidance document  
7           and publish it when the final rule is published.

8           Next slide, please. And I mentioned earlier  
9           that the comment submittal process for the guidance  
10          document is different than the comment submittal  
11          process for the proposed rule, so please note some of  
12          the differences here.

13          First of all, it has a different docket  
14          number; this is NRC-2015-0003, and put that in the  
15          subject line, and here there's only two methods for  
16          submitting comments. One is the regulations.gov  
17          website, but remember to use the correct docket number.  
18          And the second one is to mail them to the NRC, but there's  
19          a different mailing address.

20          Comments on the guidance are very important  
21          to us; it tells us where we need to provide additional  
22          information or where we can clarify the information that  
23          we have provided.

24          Comments on the guidance can also result in  
25          changes to the actual rule language. If we interpret

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1 the guidance to say something that we think the rule says  
2 and we find out people are not understanding it  
3 correctly, we might have to clarify the rule language  
4 itself.

5 Again, I encourage you to submit written  
6 comments using either one of the the two methods shown  
7 on this slide.

8 Next slide, last slide? Okay. This  
9 concludes my presentation. I'll be happy to try to  
10 answer a few questions. If you have questions later,  
11 please feel free to visit our website that's shown on  
12 the slide here, or contact me -- my contact information  
13 is provided -- or Gary Comfort, the Rulemaking Branch's  
14 project manager for this rulemaking.

15 And you can contact either one of us later on,  
16 but right now I'm going to stop and take any questions  
17 you might have for me.

18 MR. CAMERON: Okay. Thank you very much,  
19 Steve.

20 Let's go here in the audience in Austin. And  
21 Dan, please introduce yourself.

22 MR. SHRUM: Dan Shrum with EnergySolutions.  
23 You put up a May 20 webinar on the guidance document.

24 MR. DEMBEK: Yes.

25 MR. SHRUM: Could you give us an idea, a scope

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1 of what that's going to look like, how long you think  
2 you'll be talking. What's that going to look like?

3 MR. DEMBEK: Chris, did you want to add to  
4 that, or I can talk a little on it.

5 The webinar -- I believe it's going to be  
6 planned for two hours. It's already noticed on the  
7 NRC's website. It's going to be concentrating on the  
8 guidance document, focusing on the guidance document,  
9 and there's going to be no physical meeting; it's just  
10 going to be all webinar.

11 And, Dave, or, Chris, if you have anything to  
12 add to that -- Chris Grossman is organizing that  
13 meeting; I'm not organizing that one, so I don't know  
14 all the specifics of it, but it has already been  
15 announced on the NRC's public website for May 20, and  
16 so you can go see the agenda there on the website.

17 MR. CAMERON: Chris, anything that you want  
18 to add?

19 MR. MCKENNEY: Yeah. It's mainly going to  
20 be -- this is Chris McKenney, NRC. We are going to be  
21 going over the various sections in the guidance document  
22 and entertaining any clarifying questions that people  
23 have who have had some chance to look at it.

24 It's meant to just have an informational  
25 service that since most of these meetings here are

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1 looking at the rule more than the guidance document, so  
2 we wanted to have an outlet to have a short place to  
3 answer any questions that people have got before they  
4 provide their comments.

5 MR. CAMERON: Okay. And just to clarify,  
6 the comments -- any comments that are submitted on the  
7 webinar, will they be considered formal comments, or  
8 will people have to submit those formally?

9 MR. MCKENNEY: We will be, again,  
10 tracking -- picking out those comments for the guidance  
11 document again, just like any that would be submitted  
12 tonight.

13 MR. CAMERON: Okay. So that if -- so that  
14 your comments will be considered formally as comment.

15 Anybody else here in Austin on the process?

16 (No response.)

17 MR. CAMERON: Joe, do you have anybody on the  
18 phone who has a question about the rulemaking process?

19 THE OPERATOR: We have one leftover question  
20 from earlier from Gregory.

21 MR. CAMERON: Gregory -- are you going to put  
22 Gregory on?

23 THE OPERATOR: Your line is open, sir.

24 MR. SEAGRAM: Oh, yeah. Chip, can you hear  
25 me?

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1 MR. CAMERON: Yeah, we can, and just  
2 introduce yourself to us, please.

3 MR. SEAGRAM: Oh, yes. My name is Gregory  
4 Seagram, and my comments are that the line was fading  
5 in and out earlier. I wanted to alert you guys. I  
6 think [inaudible].

7 MR. CAMERON: Did anybody hear that?

8 THE OPERATOR: Gregory, are you on a  
9 speakerphone?

10 MR. SEAGRAM: Yeah, I am.

11 THE OPERATOR: Can you pick up your handset,  
12 please, for your question.

13 MR. CAMERON: Thanks, Joe.

14 (Pause.)

15 MR. CAMERON: And, Greg, are you going to  
16 pose the --

17 THE OPERATOR: I think he might have hung up.

18 MR. CAMERON: Okay. Chris, did you hear  
19 that, and would you repeat it for Penny and everybody  
20 else?

21 MR. McKENNEY: I think he was responding to  
22 the fading in and out by fading in and out himself, but  
23 I don't know what his point was, but I think that was  
24 the intent of his comment.

25 MR. CAMERON: Okay. Well, we'll assume that

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1 that's taken care of, and, Joe, we're going to go back  
2 to our presentations here. Okay?

3 THE OPERATOR: Understood.

4 MR. CAMERON: Okay. This is David Esh, and  
5 he has a number of topics that he's going to cover, and  
6 you'll see in your slides that there's a slide that says  
7 Comments and questions, and then that's where we'll go  
8 out to you.

9 But I'll turn it over to Dave to introduce his  
10 presentation.

11 DR. ESH: Okay. Thank you, Chip.

12 And do you want to check right at the  
13 beginning here, make sure people can hear me okay since  
14 I'm going to be talking a while, on and off at least.

15 MR. CAMERON: Okay. Joe, we just wanted to  
16 do a sound check with people who might be on the phones,  
17 to make sure that they are hearing David.

18 THE OPERATOR: I can do that sound check for  
19 you, or I can attempt to open multiple lines, but --

20 MR. CAMERON: Well, why don't we see if  
21 anybody -- if anybody on the phone has a problem, they  
22 can notify you, and then you notify us.

23 DR. ESH: All right. Somebody said they  
24 could hear me fine, so hopefully at least a few can.

25 MR. CAMERON: Cool. All right.

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1 DR. ESH: So I'm going to go over the more  
2 significant technical requirements of both the  
3 regulation and the guidance today, hopefully to give you  
4 some color and additional information that will allow  
5 you to formulate better comments or to ask clarifying  
6 questions of us here today that will help you in  
7 developing your comments.

8 We really are interested in getting your  
9 feedback, all types, constructive and negative  
10 comments; they're especially helpful.

11 We try to go through a very deliberative  
12 process in doing this sort thing and try to come up with  
13 the best-quality product we can, but sometimes you get  
14 a little lost in the forest, because we spend so much  
15 time and there's a lot of components to it. So it helps  
16 to get some external views of it and get your insights.

17 Next slide, please. I'm going to go over a  
18 little bit of overview. For this meeting and the other  
19 public meetings that we're going to have coming up, we  
20 go into a little bit more background, in case we have  
21 some members of the public that have decided to join us  
22 that haven't been involved in the rulemaking process to  
23 this point and need a little bit more background.

24 Then I'll go through the rule topics that are  
25 listed here. These are, I'd say, the more significant

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1 components of the changes in this rulemaking.

2 There is a bullet down at the end there that  
3 says "Other," so that means if certainly I don't cover  
4 something that's important to you and that you want to  
5 ask a question on or you want to make a comment on, you'll  
6 have the opportunity to do that after we go through each  
7 of these topics.

8 And I only have one slide on the guidance  
9 document, just to say what it is and to give you a little  
10 bit of information about the purpose of that document,  
11 the size, and what you might be looking at if you decide  
12 to review it and give us some comments.

13 Next slide, please. So this is radiation  
14 doses and limits. It's from the NRC public website.  
15 We thought this was important to give some context to  
16 what we're talking about.

17 There are some NRC-licensed dose limits on  
18 there; for instance, the worker dose limit is the  
19 largest one there at 5,000 millirem. And then there's  
20 the annual public dose limit of 100 in the center there.

21 Not listed on here, shown, are what's in this  
22 proposed rulemaking, such as the public dose limit under  
23 61.41, which will be 25 millirem per year. And then we  
24 also have an intruder dose limit of 500 millirem per  
25 year.

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1           So you can kind of put them in context of some  
2           of these other limits and other natural or manmade  
3           sources of radiation that people might be exposed to.

4           Next slide, please.    So what is in this  
5           proposed rule?   The NRC is proposing to amend its  
6           regulations that govern low-level radioactive waste  
7           disposal facilities to require the four bullets in the  
8           center here.

9           So we have new and revised site-specific  
10          technical analyses to demonstrate that the performance  
11          objectives are met.   I'll talk about those in detail,  
12          and that's kind of where the rubber hits the road.

13          In the past you may have heard people say that  
14          the performance objectives are essential to Part 61.  
15          Well, basically you're relying on technical analysis to  
16          demonstrate that those performance objectives are met.

17          So this rulemaking is about ensuring that the  
18          proper technical analyses will be done to show that  
19          those performance objectives will be met.

20          To permit the development of site-specific  
21          criteria for low-level waste acceptance based on the  
22          results of these analyses.   So this is new -- this is  
23          maybe new in NRC space, but certainly not new in some  
24          other international programs or within the Department  
25          of Energy in the US.

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1 But the idea is basically that you can do your  
2 own site-specific technical analysis and use that  
3 analysis to determine what waste is acceptable at your  
4 site and that it can be disposed of safely and that it's  
5 appropriate.

6 So in the existing regulation, under 61.42,  
7 the safety is demonstrated by the NRC's waste  
8 classification table. So basically NRC did the  
9 technical analyses, and all licensees are obligated to  
10 meet those concentration values that are found in the  
11 tables in the NRC's regulation.

12 But the conditions at your site, both  
13 environmental or potentially your receptor scenarios,  
14 those things that relate to the dose calculations, they  
15 may be different at your particular site.

16 And the waste that you want to receive might  
17 be significantly different from one site to the next,  
18 so the site-specific analysis allows you to better  
19 reflect all those unique features of your particular  
20 problem.

21 The third bullet: To facilitate  
22 implementation and to better align the requirements  
23 with the current health and safety standards. And then  
24 the fourth bullet: To ensure licensing decisions are  
25 based on defense-in-depth protections.

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1           So that's also new. That's been a drive  
2 within the NRC for quite some time, but it's shown up  
3 more strongly after the Fukushima event in Japan. The  
4 Commission has looked towards better enhancing the  
5 defense-in-depth throughout all NRC's regulative  
6 programs.

7           So our proposed rule, as Larry mentioned in  
8 his presentation, would affect low-level radioactive  
9 waste disposal licensees or license applicants that are  
10 regulated by the NRC or agreement states.

11           Next slide, please. So right now in the  
12 United States we have four active sites. Those  
13 licensees are all in agreement states. So NRC doesn't  
14 do any of the technical review associated with these or  
15 the licensing; it's all agreement states.

16           Of course, we're here in Texas today. That's  
17 where the Waste Control Specialists facility is. And  
18 those facilities can accept different types of waste,  
19 and some only within their compacts, some within their  
20 compacts and outside of their compacts.

21           That's the current operating system within  
22 the US. We may have future sites, though, in other  
23 states, so -- you know, Waste Control Specialists is the  
24 newest member that's reflected here.

25           Next slide, please. And this is a slide from

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1 a high-level standpoint, just the types of questions  
2 that you may be asked to consider in this new regulation.  
3 So if you're a licensee, these are the types of  
4 things -- you might say, How am I going to do these  
5 things?

6 If you're an agreement state regulator, these  
7 are the types of questions you would be saying: Okay,  
8 licensee, how do you do these things? The regulatory  
9 requirements address -- provide what you need to do,  
10 what are the requirements for these.

11 The questions relate more, I'd say, to the  
12 guidance document, to say what are approaches that NRC  
13 would find acceptable to address these questions, or how  
14 would I go about addressing these questions.

15 So I'll talk about that at the end of this  
16 presentation, the guidance document, at a high level,  
17 and then, as indicated, we have the webinar on May 20  
18 to go into that document in much more detail. That's  
19 a pretty big document, so you may need some time to look  
20 at it.

21 Next slide, please. This figure I thought  
22 was useful to me, and I hope it's useful to you. It was  
23 developed by Chris Grossman to kind of communicate how  
24 these things fit together. There are a variety of parts  
25 or pieces to this regulation, and we think they fit

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1 together neatly, but that's part of this process in  
2 getting your feedback, is whether you feel they fit  
3 together neatly or whether the components -- there's a  
4 piece missing or something is there that doesn't need  
5 to be there. All that sort of information is what we're  
6 looking for in this process.

7 At the top we have the assessment context and  
8 scenario development. That's kind of getting the scope  
9 of your analyses right. That applies to the three  
10 performance objectives listed there.

11 On the right-hand side of the figure,  
12 defense-in-depth, that also applies to all the  
13 performance objectives, so you have these two  
14 overlapping components to the analysis that apply to the  
15 whole regulation.

16 On the left-hand side it shows the three  
17 different timeframes, so I'm going to talk about that  
18 in a minute. One of the key considerations for this  
19 process is how long do you analyze for? What's  
20 appropriate to evaluate? How long to do your  
21 calculations for?

22 We use what's called a three-tiered approach,  
23 listed by the compliance period, the protective  
24 assurance period, and the performance period. That's  
25 what's in the proposed regulation, and that's I'm going

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1 to present to you today.

2 So those apply -- those overlie the  
3 performance objectives that are coming down the center.  
4 Ultimately all the stuff at the top feeds to the bottom,  
5 that you demonstrate that the subpart C performance  
6 objectives are met.

7 But when you're looking at the regulation and  
8 the rule text itself, the FRN or the guidance document,  
9 you know, if this is useful to you, pull this figure  
10 aside so you can kind of keep the context of how -- what  
11 all the information is and how it's fitting together.  
12 It might be helpful to you.

13 Next slide, please. Okay. So the rule  
14 topics I'm going to go through, and we'll stop after each  
15 one and get your comments or questions. The first one  
16 that we're going to start off with is the analyses  
17 timeframes.

18 Next slide, please. So the analyses  
19 timeframes is a very complex issue. It doesn't seem  
20 like it should be, but it is. Everybody has an opinion,  
21 and all the opinions seem to be different.

22 So we felt we got extensive stakeholder input  
23 on this topic. We had a variety of meetings and  
24 interactions. On the third bullet down here, we did a  
25 white paper that we came up for initial recommendation.

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1 The ADAMS ML number is there. If any of you in the  
2 public have difficulty using ADAMS, don't feel bad; we  
3 do, too.

4 So after we went through that, though, the  
5 Commission then directed some changes to us in this  
6 document here, SRM-SECY-13-0075. That's the way that  
7 the Commission communicates with the staff. The staff  
8 communicates with the Commission in a variety of ways,  
9 but one of the main ways is to issue what's called a SECY  
10 paper, where we send information up to the Commission.

11 That SECY paper may be for information or it  
12 may for a vote, so the Commission may look at that and  
13 they'll vote on it and then send some direction back to  
14 us.

15 So they gave some directed changes back to us,  
16 indicated there on the fourth bullet, and what we're  
17 looking for from you is stakeholder input, especially  
18 on the compatibility designation.

19 So as Larry mentioned, one of the elements of  
20 the Commission direction that we got, not just on the  
21 analysis timeframes but on the whole regulation, was  
22 that the significant provisions of the new regulation  
23 should be compatibility B, which means that all the  
24 agreement states would need to essentially do as NRC has  
25 proposed in the regulation here.

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1           If you're doing something different now, you  
2       would need to do what is being proposed in the  
3       regulation, and so that's a key point of consideration.  
4       Myself personally, I'm a big believer in flexibility to  
5       the agreement states, and that was indicated in the  
6       Commission's direction.

7           The technical components that we came up with  
8       in the rule we wanted to try to still preserve that  
9       flexibility for the agreement states, but when the  
10      provisions are proposed as compatibility B, then that  
11      means you're going to adopt them, so we want to hear from  
12      you whether you feel like your flexibility has been  
13      preserved or if your flexibility's going to be limited  
14      by what is proposed and how it's been proposed.

15          So next slide, please.    So some of the  
16      considerations that went into analyses timeframes, the  
17      three figures on here are small; they're in the backup  
18      of this slide package so you can look at them.   I don't  
19      expect that you all have eyes that can see that; I know  
20      I don't.

21          The things we considered, though, were waste  
22      characteristics; that's important, especially for the  
23      depleted uranium problem, because it is so long-lived,  
24      and it is somewhat different than traditional low-level  
25      waste.

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1           Traditional low-level waste generally has a  
2           lot of short-lived activity that decays very rapidly,  
3           so as the darker blue line on that figure in the top  
4           corner shows, it drops off, whereas by year 1000 it might  
5           be less than 1 percent of what you started with.

6           The depleted uranium stays very flat,  
7           dominated by the uranium isotopes, and then the progeny  
8           start experiencing some ingrowth as you go out in time,  
9           where the activity at very long times ends up higher than  
10          what you initially start with.

11          We should also note that depleted uranium  
12          isn't necessarily pure, and it isn't necessarily just  
13          all uranium. Some depleted uranium, depending on the  
14          source, has other isotopes in it, so depleted uranium  
15          that comes from the Department of Energy, on the order  
16          of 4 to 5 percent of it, has a variety of other isotopes  
17          mixed in with it.

18          We considered uncertainties. That's a key  
19          consideration. The uncertainties generally increase  
20          with time. They increase in time for some aspects of  
21          the problem more than others, one of those being kind  
22          of the socioeconomic considerations or especially  
23          future land use. That's the green line in the middle  
24          there.

25          On the scale of hundreds to thousands of

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1 years, we think that uncertainty probably increases  
2 quite dramatically.

3 We did consider domestic experience; that's  
4 the table at the bottom there. And we considered  
5 international experience, what we could find. That  
6 information wasn't necessarily easy to come by. And  
7 then past policy considerations by the NRC.

8 So all that put together is discussed in the  
9 white paper that I mentioned on the previous slide.  
10 Take a look at that if you have comments in this area;  
11 it might help you formulate your comments.

12 Next slide, please. So what are we proposing  
13 in this regulation? In the previous public meeting we  
14 had kind of what went to the Commission and then what  
15 came back or what we ended up with.

16 Here we're just showing you what we're  
17 proposing. We thought that was cleaner. It doesn't  
18 matter how we got to this point; this is the point we're  
19 at. This is the point we want your comments on.

20 What we're proposing now is a three-tiered  
21 approach that's a compliance period from the site  
22 closure time out to a thousand years after closure.  
23 That has a 25-millirem dose limit for 61.41 and also as  
24 low as reasonably achievable component to that, ALARA.

25 For the intruder it has a 500-millirem dose

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1 limit for the compliance period. After the compliance  
2 period is what's termed the protective assurance  
3 period; that goes from a thousand years to 10,000 years.

4 And the way that part of the analysis is  
5 structured right now is an optimization process, where  
6 your goal is to minimize the impacts to the extent  
7 practical.

8 So that I'm going to talk about in more detail  
9 after this -- this is kind of high-level analysis  
10 timeframes, what's the structure to it? I'll talk  
11 about each of the second pieces and you'll have an  
12 opportunity to comment on those.

13 After the protective assurance period -- the  
14 first two tiers apply to all facilities, always. Okay?  
15 The last tier, the performance period, only applies if  
16 you have significant amounts of long-lived waste, and  
17 we have developed a table that provides concentrations;  
18 that's kind of the trigger point to determine whether  
19 you need to that third tier of the analysis or not.

20 We thought that was useful because some sites  
21 might have only very limited amounts of long-lived  
22 waste, so why would you want them spending resources on  
23 that long-term analysis? That doesn't seem very  
24 reasonable.

25 So that -- overall this is the structure of

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1 the approach that we came up with for the analysis  
2 timeframes.

3 Next slide, please. These are some  
4 definitions associated with it. The first one is  
5 long-lived waste definition. It's a bunch of words  
6 there. What we're attempting to do is capture  
7 both -- capture radionuclides that are both long-lived  
8 and have long-lived progeny or have ingrowth phenomena  
9 that produce potentially long-lived impacts or  
10 long-lived risk.

11 So when you compare that definition to, say,  
12 the existing tables in Part 61, it matches pretty well,  
13 so something like carbon-14 would be considered  
14 long-lived, and it's on the long-lived table within Part  
15 61, whereas other isotopes like, say, cesium-137, they  
16 would not meet this long-lived waste definition;  
17 they're on the short-lived table.

18 Okay. And then the compliance period,  
19 protective assurance period, and performance period I  
20 already discussed, and I'm not going to read those  
21 there.

22 Next slide, please. So now what we're  
23 seeking your feedback on is this overall approach,  
24 kind of the three-tiered approach. You think it works?  
25 Is it going to give you flexibility? Is it too

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1 complicated? You know, whatever your comments and  
2 feedback might be.'

3 If you have questions about it, I'll try to  
4 answer them. The idea that the compatibility is going  
5 to be B for this area, so all agreement state licensees  
6 are going to use a structure like this.

7 And then this long-lived waste definition, is  
8 it going to achieve the goal that we're trying to  
9 achieve?

10 So we'll break and take comments and  
11 questions here, and then we'll move on to the next topic.

12 MR. CAMERON: Okay. Thank you very much,  
13 Dave.

14 Here in Austin, let's go out here to Karen.  
15 And, Karen, if you could just introduce yourself for us,  
16 please.

17 MS. HADDEN: Hi, I'm Karen Hadden with SEED  
18 Coalition. I would like to ask a question about slide  
19 10.

20 Okay. Could you repeat and/or explain a little further  
21 about what is being considered here? Is this all  
22 low-level waste?

23 And this is incredibly hard to see and read.  
24 It's got several very small charts on it. Is it  
25 available larger as well?

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1 DR. ESH: Right. To answer your second  
2 question first, the -- each of these figures are in the  
3 backup of your slide package there, so you should have  
4 a bigger version that you can see.

5 There are also -- at least the middle one is  
6 in the white paper that I referenced that the ML number  
7 is given in the slide package here. The table I believe  
8 is from the regulatory basis document, but you have a  
9 big version in this slide package to look at, too.

10 And I'm not sure -- the top figure. I  
11 believe it's in one of those documents also; we've used  
12 it a number of times in the past.

13 And then your first question was: Are all of  
14 these things being -- is this being applied to all  
15 low-level waste? That was your question. Right?

16 Yes, this approach to analysis timeframes  
17 would apply to all low-level waste analyses.

18 MR. CAMERON: Anything else at this time,  
19 Karen, on that?

20 (No audible response.)

21 MR. CAMERON: Okay. Let's go to this  
22 gentleman. Yes, sir.

23 MR. BURNAM: I'm Lon Burnam; I'm with Public  
24 Citizen, and I have three questions, all concerning the  
25 uncertainties.

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1 I live in the Barnett Shale, and we thought  
2 that for about 10,000 years the ground would be stable,  
3 but we're learning over the last two or three years, due  
4 to various industrial activities -- fracking and  
5 injection wells -- the ground is no longer stable.

6 I'm wondering to what degree you're  
7 incorporating this massive change in technology as an  
8 unpredictable and uncertain reality.

9 DR. ESH: Right. So it's a very good  
10 question, and I agree with you. The technology  
11 uncertainty or kind of the human aspect of the  
12 uncertainty is large.

13 What we recommend, both through this analysis  
14 approach of looking at long timeframes and in how you  
15 do your evaluation, is to proceed cautiously with  
16 respect to the uncertainties and not be, I'd say,  
17 close-minded as to the potential magnitude of those  
18 uncertainties.

19 Include them within the scope of your  
20 analysis; maybe not, I'd say, the development of  
21 fracking, for instance, is I think partly what you may  
22 have been alluding to, but the approach to the analysis  
23 to develop the scope -- if you have a chance to look at  
24 our guidance document, we have a whole chapter in there  
25 now, or a big part of a chapter, Chapter 2, which is about

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1 features, events, and processes.

2 And I'm going to talk to that when we go over  
3 performance assessment here in a second, but it's  
4 basically how do you develop the scope for your analysis  
5 to come up with a credible analysis for your problem?  
6 That would include uncertainties of various types.

7 It's supposed to be a somewhat deliberative  
8 process to come up with how do you feel you've done a  
9 proper analysis for your problem. There might be some  
10 uncertainties that are intractable. There's different  
11 ways to manage those.

12 You can do that through, say, site design or  
13 engineering for some cases. One very straightforward  
14 way to limit the impact of some uncertainties for a waste  
15 disposal problem is to develop waste concentration  
16 limits that limit the types of materials that are  
17 suitable to be disposed of.

18 That's a very direct way to manage an  
19 uncertainty for disposal. If you're talking  
20 remediation, it's much more difficult. So site  
21 cleanup, the stuff is in the environment and you don't  
22 have that flexibility, but for disposal you have a  
23 variety of ways you can kind of attack the  
24 uncertainties.

25 So we go into uncertainties a lot in the

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1 document, and the three-tiered approach that we got from  
2 the Commission in their direction, one of their key  
3 considerations was uncertainty.

4 So whether you agree with it or not, I'd say  
5 look at both our white paper and then look at the  
6 direction from the Commission, and it kind of gives you  
7 a flavor of how uncertainties were considered in the  
8 process.

9 MR. CAMERON: Follow-up?

10 MR. BURNAM: I'm not sure I got an answer to  
11 my question. I heard the answer, but we're dealing with  
12 a new phenomenon. We've had several scores of  
13 earthquakes, small earthquakes, but one exceeded 4 on  
14 the Richter scale within the last two weeks.

15 This is all apparently manmade, created. Is  
16 this going to affect future sitings?

17 DR. ESH: Right. Well, whether the source  
18 of the seismic effect is from, say, a manmade phenomenon  
19 or a natural phenomenon, the low-level waste  
20 siting -- site characteristic requirements and the  
21 analysis, you have to evaluate seismic effects in the  
22 problem.

23 So you can look at the site characteristics  
24 under 61.50; it talks about not just seismic but  
25 geomorphology, erosion, subsidence, all the different

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1 phenomena are supposed to be part of the technical  
2 analysis when you select a site and then also when you  
3 analyze it.

4 So whether it's anthropogenic effect that's  
5 causing a seismic effect or whether it's nature, those  
6 sorts of things are supposed to be considered in the  
7 technical analysis.

8 MR. CAMERON: And, Dave, when you go through  
9 some of your other topics, if you see a chance to use  
10 this example that this gentleman posed to illustrate  
11 that, could you please do that.

12 DR. ESH: Right. And the favorable thing  
13 for waste disposal systems is in general, because it's  
14 a passive safety system, they aren't as susceptible to  
15 influences from seismic events, especially smaller  
16 seismic events.

17 A large seismic event, sure; a large seismic  
18 event is going to disrupt almost any engineered system  
19 or natural system. But for the repetitive smaller  
20 seismic effects, these systems aren't as susceptible to  
21 that as maybe some active safety systems in other types  
22 of projects or problems.

23 MR. CAMERON: Okay. We're going to go to  
24 Scott.

25 MR. KIRK: Thank you. Scott Kirk, Waste

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1 Control Specialists. First of all, Larry and staff,  
2 this is a huge milestone -- congratulations -- coming  
3 to this part, or at least where we are today in the  
4 rulemaking.

5 My comment is about compatibility. What  
6 used to be the period of performance now is three tiers.  
7 When the rule was coming out, for the last couple of  
8 years, as it was discussed, the thought was, at least  
9 with agreement states, that perhaps agreement states  
10 that would have more stringent requirements than what  
11 the NRC might be proposing would be able to retain  
12 those -- that compatibility or their own state  
13 regulations.

14 And the thought was it would be a  
15 compatibility level C. To my understanding, the  
16 Commission directed the staff to put a compatibility  
17 level B. They wanted uniformity in the standards, but  
18 they also recognized the sensitivity of the agreement  
19 states and that they directed the staff to circle back  
20 with the agreement states to collect additional  
21 information.

22 Now, my thought is in Texas the period of  
23 performance is a thousand years, or peak dose,  
24 whichever's longer. It's much more stringent than what  
25 the NRC is proposing.

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1           In Andrews County we have tremendous  
2           community support, and it's very difficult to site new  
3           low-level waste disposal facilities.

4           And what I would encourage you to do is go back  
5           to the Commission, share some of these viewpoints,  
6           because the thought is if the federal government can  
7           make an agreement state impose less stringent  
8           standards, it could erode community support and make  
9           siting new facilities much more difficult.

10          That's my comment.

11          MR. CAMERON: Good. Thank you, Scott.

12          And, Larry, do you want to comment?

13          MR. CAMPER: Thank you, Scott. That's an  
14          excellent comment. And I will tell you firsthand,  
15          having discussed this very issue with the  
16          Commissioners -- actually, I think every one of them,  
17          there was an awareness that, by imposing compatibility  
18          B, we would be imposing a compliance period that's less  
19          than what's currently used by the states.

20          And I think the Commission was driven, to a  
21          large degree, by consistency and reasonably foreseeable  
22          future. Even a thousand years is very challenging to  
23          predict what will be the situation societally. And one  
24          of Dave's slides pointed that out very well.

25          So there was an interest in reasonably

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1 foreseeable future and consistency. However, the  
2 Commission -- and you're right, Scott -- specifically  
3 requested that the staff explore this issue, which is  
4 why I pointed out in my comments.

5 And in our conversations with the four states  
6 that operate the facilities, we are discussing this in  
7 some detail, and there are some fairly strong views by  
8 the four states that operate, and we expect that. And,  
9 yes, we will go back to the Commission and share with  
10 them what we heard during the course of the meetings and  
11 discussions with the agreement states that operate the  
12 four sites.

13 MR. CAMERON: Okay. Let's try the phones  
14 here.

15 Joe, is there anybody who wants to ask a  
16 question or make a comment?

17 THE OPERATOR: We do have a question coming  
18 from Diane.

19 Your line is open.

20 MS. D'ARRIGO: Hi. I wanted to know when a  
21 member of the public becomes an intruder, when their  
22 dose can shift from 25 millirems to 500 millirems? And  
23 I also thought that I read in there that you're also  
24 planning to change millirems to be  
25 millirems-effective-dose-equivalent, although it

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1       wasn't really clear in the red-lined version.

2               So if you do that, then there'll be more  
3       radioactivity per millirem.

4               DR. ESH:   Right.

5               MR. CAMERON:  Go ahead, David.

6               DR. ESH:   Yeah.    Okay.    So your first  
7       question:  It can be a bit confusing to understand this  
8       conceptually.  We had this comment during our previous  
9       meeting at headquarters or at --

10              MS. D'ARRIGO:  Yeah, and I'm interested in  
11      that.  Did you deliberately not tell members of the  
12      public about that meeting?

13              DR. ESH:  The previous meeting?

14              MS. D'ARRIGO:  Yeah.

15              DR. ESH:  No.  I believe it was noticed in  
16      the *Federal Register* with the required 10-day period.

17              MS. D'ARRIGO:  Huh.

18              MR. CAMERON:    Okay.    And if we need  
19      to -- we'll address that a little bit later on, Diane,  
20      to make sure that it's clear how that was noticed.

21              DR. ESH:  Right.  The intruder is defined as  
22      somebody that inadvertently uses the site after the  
23      institutional control period, so the institutional  
24      control period can be up to a hundred years in NRC's  
25      regulations.

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1           So the intruder is somebody that actually  
2 comes on to the physical site boundary after that period  
3 in time. It's intended that there will be controls in  
4 place, active controls during the institutional control  
5 period and passive controls after that, such as deed  
6 restrictions and federal or state ownership of the land.

7           MS. D'ARRIGO: Well, why can they get 500  
8 millirems. I thought we were trying to protect people  
9 at 25.

10          DR. ESH: Right. So --

11          MS. D'ARRIGO: So depleted uranium can be  
12 there?

13          DR. ESH: No. The member of the public is  
14 outside of the facility boundary, and their dose limit  
15 is 25 millirems for all the periods of time we talked  
16 about, and it remains at 25 millirems.

17          The intruder dose limit is 500 millirems for  
18 somebody that inadvertently uses the site after the  
19 institutional control period, because that is believed  
20 to be an unlikely scenario.

21          So that higher dose value reflects the fact  
22 that the Commission believes that's not expected --

23          MS. D'ARRIGO: Who decided it was unlikely?

24          DR. ESH: The Commission believes that it's  
25 unlikely that that scenario will occur, due to the

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1 passive controls that are going to be in place for the  
2 facility.

3 The 500-millirem dose limit that you see in  
4 61.41 -- or 61.42 right now that's being proposed is  
5 what the waste classification tables were developed,  
6 based upon in the existing regulation.

7 So those concentration values that you see in  
8 table 1 and table 2 are based on an intruder analysis  
9 using a 500-millirem dose limit.

10 MR. CAMERON: And before we get to the TEDE  
11 question, I think that Chris McKenney -- did you want  
12 to say anything?

13 (No audible response.)

14 MR. CAMERON: Okay. David, do you want to  
15 talk to Diane's second point about TEDE?

16 DR. ESH: Right. Your second point is  
17 correct that the dose values are total effective dose  
18 equivalent now. So that's -- I think that's what you  
19 asked.

20 MR. CAMERON: Okay. And --

21 MS. D'ARRIGO: So then the allowable  
22 radioactivity that a person could be exposed to is  
23 higher; you just have a calculation that it's less?

24 DR. ESH: Right. I think in some cases the  
25 radiation goes up; in other cases it goes down. It

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1 depends on the particular isotopes, and it's based on  
2 the revision or modernization of the dose conversion  
3 factors, basically.

4 MR. CAMERON: And can you expand on -- what's  
5 the rationale for going to the new --

6 DR. ESH: Right. So going to the new  
7 methodology is something that the Commission has  
8 directed us to do in previous analyses, for waste  
9 incidental to reprocessing, for instance. It  
10 basically represents --

11 MS. D'ARRIGO: Where they make high-level  
12 waste into low-level waste. Uh-huh.

13 DR. ESH: Right. Where the proper  
14 classification of radioactive materials is evaluated,  
15 so -- and then that modernization of the dose  
16 methodology, they -- we are doing in this regulation.

17 MR. CAMERON: And, Larry, do you want to  
18 talk --

19 MS. D'ARRIGO: Well, my comment is that I  
20 oppose it. I opposed when you adopted it in 10 CFR 20,  
21 and so I oppose that, because that means more  
22 radioactivity.

23 MR. CAMERON: Okay. Diane, we have -- Larry  
24 Camper wants to address your concerns.

25 Larry?

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1 MR. CAMPER: Thanks for being there, by the  
2 way, Diane.

3 There's an extensive discussion in the FRN  
4 for this rule that addresses the issue that you're  
5 raising. The current ICRP is based upon -- the current  
6 Part 61 is based upon ICRP 2, which was created in 1957.  
7 Organ weighting factors were not known then.

8 Since that time there have been several  
9 variations and updates of the ICRP methodology, with the  
10 latest being 103, that considers weighting factors for  
11 organs and the summation of that dose that leads to total  
12 effective dose equivalent.

13 So what we're trying to do is bring to bear  
14 state-of-the-art health physics as described by the  
15 ICRP today, because we're going to let in this  
16 regulation licensees or operators use the most recent,  
17 current ICRP possible, which is far better science than  
18 ICRP 2, dating back to 1957.

19 MS. D'ARRIGO: But it leads to higher amounts  
20 of radioactivity.

21 MR. CAMERON: Okay. And, Diane, your  
22 comment is on the record here, and we'll look forward  
23 to more of your comments as we proceed tonight.

24 And, Joe, is there anybody else on the phone  
25 on this issue?

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1 THE OPERATOR: There are no other questions  
2 on the phone line at this time.

3 MR. CAMERON: And that doesn't sound like  
4 Joe.

5 THE OPERATOR: It's not.

6 MR. CAMERON: Who are you?

7 THE OPERATOR: My name is Amber.

8 MR. CAMERON: Amber. Okay. Thanks, Amber,  
9 for helping us out.

10 And we'll going to go to, I believe, the  
11 second topic, and then we'll be back to the audience and  
12 then back out to you, Amber, and the people on the phone.

13 DR. ESH: Thank you, Chip.

14 The second topic is performance assessment,  
15 and that's the name of the analysis that's used to  
16 demonstrate compliance with 61.41. So this is a figure  
17 just saying in general terms what it is.

18 And you start in the upper left-hand corner;  
19 you have some real system that then you're going to  
20 attempt to develop a mathematical model or maybe a  
21 simplified mathematical model, a term we use here,  
22 abstraction, to describe that real system in order to  
23 estimate future performance. So it's an estimation of  
24 future performance.

25 Some might call this a model, and all

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1 models -- in traditional modeling, you're going to do  
2 both model verification and model validation. So model  
3 validation is when you can actually observe effects and  
4 see how your model compares to those effects. You did  
5 well with your modeling.

6 In performance assessment you can't do model  
7 validation in the traditional sense, because the  
8 estimated future performance or the future effects  
9 occur in the very distant future.

10 So we generally encourage people to do robust  
11 model support for these types of calculations, and I'll  
12 show you that on the next slide.

13 So the model support that we talk about is  
14 using information from the past, present, and future  
15 conditions to kind of justify the results that you've  
16 estimated with your model.

17 The real world, as one gentleman mentioned in  
18 one of his comments, it can be highly dynamic. There's  
19 lots of uncertainties, so the best way to try to justify  
20 that your calculations are appropriate is to combine  
21 different sources of information for the various  
22 components of your model and show that it's doing what  
23 you expect.

24 So we advocate using past, present, and  
25 future information; past being analogs and historical

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1 data from the site and the environment around the site;  
2 present information, where you can do lab and field  
3 experiments of the key things that you're trying to  
4 understand with respect to your site and your disposal  
5 facility; and then in the future, what can help address  
6 some of the uncertainties is use the long-term  
7 monitoring data that you may collect prior to closing  
8 your facility, or during the institutional control  
9 period, or even if you can design some long-term  
10 experiments if there's some key issues or uncertainties  
11 that you want to understand better going into the  
12 future. So all those components work together to  
13 support your models for the performance demonstration.

14 Next slide, please. The performance  
15 assessment, in our mind, is not a new topic; it's really  
16 just renaming technical analyses. So in the existing  
17 regulation, 61.13 has technical analyses. Performance  
18 assessment falls under that; it's a type of technical  
19 analysis.

20 All we're doing is modernizing those  
21 technical analyses requirements. There are some new  
22 requirements in 61.13 -- they're shown here on the  
23 slide -- with respect to the scope, features, events,  
24 and processes; with respect to uncertainty and  
25 variability, or needing to evaluate it as a requirement;

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1 and also needing to support your calculations.

2 Those new requirements we feel any modern  
3 performance assessment should be doing or should have  
4 done, so they shouldn't be burdensome on even existing  
5 licensees or new licensees, because they're part of the  
6 performance assessment process.

7 As indicated on the right here, we're taking  
8 some things that are implicit in the existing regulation  
9 and making them explicit.

10 In addition to the items I just noted, there's  
11 a requirement to update the performance assessment at  
12 closure, and then we also modified the siting  
13 characteristics consistent with the disposal of  
14 long-lived waste.

15 So there are siting requirements under 61.50;  
16 they're exclusionary. If you look at the modifications  
17 to the text there, there are things like you can't put  
18 a facility in a 100-year floodplain, or you're not to  
19 dispose of waste in the zone of water table fluctuation.  
20 There's a variety of other ones.

21 Basically if you're doing those things now,  
22 today, what are your chances of getting the risk right  
23 in the future? The argument being put forth is your  
24 chances of doing that are low. Therefore, if you have  
25 those characteristics today, you haven't selected a

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1 good site.

2 But then there are other characteristics that  
3 are more performance based. Those you have to evaluate  
4 to see, okay, do these things have the potential to cause  
5 me to not achieve my performance objectives?

6 So that modification to 61.50 was just to  
7 bifurcate those requirements and make it clear which  
8 ones are truly exclusionary for the first 500-year  
9 timeframe and then which other ones apply or can be  
10 evaluated more performance based after that.

11 Next slide, please. This is kind of a  
12 different version of what I've already just talked  
13 about. You have performance assessment process in the  
14 center; it's about collecting data, developing models,  
15 numerical models; combining the effects, and then  
16 iterating, if necessary.

17 The new requirements that we have in this  
18 regulation are shown around the outside. You have a  
19 number of 61.13 requirements -- those are with respect  
20 to the analysis itself -- and then some other ancillary  
21 or knock-off requirements I would call that are related  
22 to the performance assessment are also shown on this  
23 diagram.

24 So that's updating the performance  
25 assessment at closure, using the results of the

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1 performance assessment to develop your waste acceptance  
2 criteria under 61.58. I already noted the change to  
3 61.50, and I think that's it in this slide.

4 Next slide, please. So in words,  
5 performance assessment is an analysis that identifies  
6 the features, events, and processes that might affect  
7 the disposal system; examines the effects of these  
8 features, events, and processes on the performance of  
9 the system; and then estimates the annual dose to any  
10 member of the public caused by all significant features,  
11 events, and processes.

12 So you evaluate the scope of your problem, you  
13 determine which ones are significant, and then do your  
14 analysis to see what dose results from including all  
15 those significant features, events, and processes.

16 Next slide, please. This is an example from  
17 the guidance document. We developed a number of what  
18 we call hazard maps, so these are to try to help with  
19 the FEP process or the siting process, or both. This  
20 one -- this example is for areas of potential flooding.

21 And I should caveat this. This is a very  
22 detailed GIS analysis that gives some very beautiful  
23 maps, especially when you overlay all of them on one map  
24 and look at all the hazard potential of just different  
25 phenomena.

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1 But is at a scale of resolution that you can't  
2 look at this map and place your site on it and say, Oh,  
3 this has a problem of flooding. You need to look at it  
4 at higher resolution to see that, and it's only a  
5 guideline to say when you might need to look at a process  
6 in more detail.

7 So don't use the hazard maps to say, based on  
8 this hazard map, this site shouldn't be licensed or  
9 should be there. It means if you're in an area -- say,  
10 in this example -- where it's dark, you want to ask  
11 questions -- if you're the licensee, you want to provide  
12 a more robust argument why flooding isn't important.

13 If you're a regulator, you want to ask the  
14 licensee, hey, why isn't flooding important at your  
15 site? That's the way it's supposed to be used. It's  
16 a risk-informing tool for the analysis.

17 Next slide, please. So in this area what  
18 we're seeking feedback on, at the highest level, should  
19 you even be using technical analysis to evaluate to the  
20 disposal of long-lived waste? It is pretty much what  
21 is done domestically and internationally, with some  
22 caveats.

23 Different programs take different approaches  
24 to this problem. Some programs will set a waste  
25 concentration level -- say, so many nanocuries per gram

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1 of long-lived alpha; that's a strict limit that sets  
2 what you can evaluate with the technical analysis and  
3 what needs to be managed with some other process; say,  
4 disposal as in a deep geologic repository.

5 So that's one approach. We believe that the  
6 technical analysis approach can lead you to a more  
7 risk-informed answer for the problem, so that's what  
8 we've proposed in this regulation.

9 We also want your feedback on the new  
10 technical analysis requirements under 61.13, so that's  
11 especially the three areas I highlighted: getting the  
12 scope right, including uncertainty and variability in  
13 the analysis, and providing support for your models.

14 And then as I noted, the modifications to the  
15 siting characteristics requirements under 61.50, and  
16 the requirement to update the performance assessment at  
17 closure.

18 MR. CAMERON: Thanks, David. Do we have any  
19 discussion, comments here in Austin?

20 Yes, we do.

21 Karen.

22 MS. HADDEN: David, thank you. Could you  
23 please repeat and explain -- you were talking about  
24 siting requirements, like you can't put it in a 100-year  
25 flood zone. And I believe you said something about, or

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1 where the water table fluctuates. Would you repeat and  
2 explain that, please.

3 DR. ESH: Right. There's siting  
4 characteristics under 61.50 about a zone of water table  
5 fluctuation. So basically you want to put the material  
6 above the zone of water table fluctuation, because it  
7 can pulse releases out of the system, or it can make  
8 modeling or analysis difficult for the system if you are  
9 in the zone where the water fluctuates.

10 MR. HADDEN: Is there a requirement that the  
11 amount of fracking near a site be disclosed? There  
12 seems to be so much additional fracking --

13 DR. ESH: Right.

14 MS. HADDEN: -- that didn't used to be  
15 present in the past.

16 DR. ESH: There is a siting requirement about  
17 consideration of the natural resources in the area and  
18 how they may be exploited. And generally you don't want  
19 to locate a site in an area of active resource  
20 exploration because of potential effects from that  
21 exploration that could impact your disposal facility.

22 So you can look at 61.50. There's a  
23 requirement on where you site your facility with respect  
24 to resource exploration.

25 MR. CAMERON: Okay. And, yes, sir. And

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1 please introduce yourself again.

2 MR. BURNAM: I'm Lon Burnam with Public  
3 Citizen, and I guess the follow-up question to Ms.  
4 Hadden's is concerning the water table.

5 If you find that maybe a mistake has been made  
6 and the water table is such that water's regularly  
7 standing in facilities, such as the WCS facility, what  
8 is your method to reassess that situation?

9 DR. ESH: Right. I'll answer that from a  
10 general standpoint first, and then maybe if you want to  
11 follow on with a more specific -- I understand your  
12 comment, first of all.

13 Performance assessment and technical  
14 analyses is not unanticipated that sometimes things may  
15 be different than what you expected. That's why, on  
16 that diagram, that arrow kind of goes around. It's made  
17 to be iterative.

18 So you're going to do an assessment when you  
19 apply for a license and you develop your facility, but  
20 then you're going to continually update that analysis  
21 as you're operating.

22 And as more information comes in, that  
23 analysis should be updated. Hopefully if you're smart  
24 about it and your regulators were tough on your and  
25 everybody evaluated everything properly, that you won't

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1 have something that comes up unforeseen that causes a  
2 performance issue, but it is a possibility, because, as  
3 you noted, the world is complex; sometimes things aren't  
4 as they were initially understood.

5 So that -- there always is an avenue at  
6 the -- in the licensing process or even at the end of  
7 the operation process that, if there is a public health  
8 and safety concern, that you can go in and do some sort  
9 of remediation or action to try to mitigate that  
10 concern.

11 MR. BURNAM: Well, as a follow-up question,  
12 if a citizen asks on several occasions for a  
13 clarification and an explanation as to why there's water  
14 standing there and we can't seem to get a resolution,  
15 how can we go to the NRC and ask the same question and  
16 see if we can have a better enforcement mechanism than  
17 we have here in the state of Texas?

18 DR. ESH: Right. The primary mechanism you  
19 have is you can always raise a safety concern to NRC,  
20 and then we evaluate those concerns. If it applies to  
21 either an NRC-licensed action or to an agreement state  
22 program, you can raise a safety concern to NRC, like this  
23 one with respect to standing water. I'm not familiar  
24 with the issue, so I can't really comment more on it at  
25 this point.

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1 MR. CAMERON: And the process where people  
2 can raise issues like this for the NRC in terms of NRC  
3 licensees or agreement state licensees, I think you can  
4 use 10 CFR 2.206 process?

5 AUDIENCE MEMBER: Repeat the number, please.

6 MR. CAMERON: It's 10 CFR 2.206.

7 Anybody else in Austin before we go to Amber  
8 and the people on the phone?

9 (No response.)

10 MR. CAMERON: Okay. Amber, does anybody  
11 have a question or a comment on the last presentation?

12 THE OPERATOR: There are no questions on the  
13 phone line at this time.

14 MR. CAMERON: Okay.

15 David, what's next?

16 DR. ESH: Next is intruder assessment, so the  
17 first figure we have here on slide 23 is just a  
18 conceptual picture of what the intruder assessment is.

19 So in the existing regulation, under 61.42,  
20 you don't have a requirement to do an intruder dose  
21 assessment. The evaluation that you're meeting the  
22 requirements under 61.42 are determined by the waste  
23 classification tables and some other requirements  
24 related to intruder barriers and that sort of thing, but  
25 you don't have to do an intruder dose assessment in the

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1 existing regulation.

2 In the proposed regulation that we're coming  
3 forth with now, you will have to do an intruder dose  
4 assessment, and the reason for that is when the tables  
5 under 61.55 were developed, they had to use a certain  
6 source term to do that evaluation -- they being NRC; I'm  
7 sorry.

8 NRC had to use a certain source term to do that  
9 evaluation, so they did their best effort at developing  
10 what they thought were the types of waste and the  
11 concentrations that were going to go into low-level  
12 waste facilities, and they did what we call an inverse  
13 analysis.

14 So they set a dose limit and then they  
15 determined what concentrations would give them that  
16 dose. Those are the concentrations, after some  
17 modifications and changes, that are shown in the waste  
18 classification tables in 61.55.

19 At that time, when the analysis was done, the  
20 NRC didn't anticipate large quantities of depleted  
21 uranium, for instance, going in low-level waste  
22 disposal facilities or some of the other things that  
23 have been talked about, like blended waste that Larry  
24 mentioned on his slide.

25 Potential changes to the nuclear fuel cycle

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1 that changes isotopic distributions or the quantities  
2 of certain waste, all those changes right now, in the  
3 existing regulation, would fall under 61.55(a)(6),  
4 which means if it's not in the table, it's Class  
5 A -- basically Class A by default.

6 Well, technically we know if you take  
7 something like depleted uranium, that may be the plain  
8 reading of the regulation as it's written, but  
9 technically you would be hard pressed, unless the  
10 quantity is limited, to show that it would fall under  
11 that 61.55(a)(6).

12 So the better approach is to require the  
13 site-specific intruder assessment, and then the  
14 individual sites can evaluate exactly what the risk is  
15 from the intruders, instead of NRC trying to develop a  
16 calculation and apply it to everybody, when site  
17 conditions are so different from, say, Texas to South  
18 Carolina.

19 It doesn't make much sense to do a  
20 one-size-fits-all when we have the modern tools to do  
21 a better evaluation at different locations and  
22 different sites.

23 So conceptually the intruder assessment is a  
24 dose assessment for somebody that comes on the site and  
25 actively does thing. In NRC's evaluation, they

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1 potentially build house, or they put a well in, or  
2 possibly both. And the impacts to the person that built  
3 the house or installed the well were evaluated, as well  
4 as the chronic impacts of somebody that lived in the  
5 house or used the well on the disposal site.

6 So the inadvertent intruder is somebody  
7 that's actively on the disposal site and may directly  
8 disperse waste into the environment and be exposed by  
9 a variety of pathways.

10 Next slide, please. So this intruder  
11 assessment is a new analysis. The proposed  
12 modifications will require the stylized analysis  
13 instead of solely relying on the waste classification  
14 tables.

15 The new requirements in 61.13 are similar to  
16 what we did in 61.13 with respect to the performance  
17 assessment: how do you determine the scope of the  
18 analysis? For the intruders one of the most important  
19 things is who are they and what are they  
20 doing? -- because that can greatly change the  
21 magnitudes of the doses that result from the scenarios.

22 What we advocate in our guidance document is  
23 you can go ahead and do site-specific intruder analyses  
24 using your own scenarios. Do the NRC default  
25 scenarios, too, and show how they compare, so that your

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1 stakeholders understand how important is this assumed  
2 receptor scenario that you may be using, compared to the  
3 default scenarios that were used in the past.

4 So we have the change to the performance  
5 objective in 61.42 to reflect this requirement for the  
6 intruder assessment, and just like the performance  
7 assessment, a requirement to update it at closure.

8 Next slide, please. The figure on the right,  
9 it's from the guidance document; I think it might be 4.1;  
10 I don't remember right now, but it's in the guidance  
11 document; it's a bigger figure.

12 We put things like flow charts in the guidance  
13 document for those of you that like to step through the  
14 process and know what you have to do, as well as more  
15 verbal and generic type of guidance that provide you  
16 some flexibility.

17 So the key part on here is the last two  
18 bullets. The intruder assessment is to be based on  
19 intrusion scenarios that are realistic and consistent  
20 with expected activities in and around the disposal site  
21 at the time of site closure.

22 And the dose limit that would be applied to  
23 the intruder assessment is 500 millirem for the  
24 compliance period.

25 Next slide, please. So what we're seeking

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1 feedback on are all the elements related to the intruder  
2 assessment: the revised and new definitions for the  
3 intruder assessment found in 61.2; the revised concepts  
4 to describe what this is and why you're doing it, in  
5 61.7.

6 I would just note that 61.7, the concept  
7 section, are not requirements in the sense of the word  
8 like you'll find in the other parts of the regulation;  
9 they provide the context and description for what you  
10 find in the rest of the regulation.

11 And then also under 61.28 the requirement to  
12 update the intruder assessment at closure, and of course  
13 the revised performance objective for the intruder  
14 assessment.

15 So we'll take your comments and questions you  
16 might have about the intruder assessment.

17 MR. CAMERON: Okay. Before we go to that,  
18 Lisa London from NRC's Office of General Counsel has  
19 some more information on how you might submit concerns  
20 to the NRC.

21 Lisa?

22 MS. LONDON: Yeah. I just wanted to address  
23 the comment raised earlier, and Chip had offered the  
24 advice of looking at 10 CFR 2.206. I would also point  
25 out that the NRC has, on its website, a backgrounder on

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1       allegations.

2               We've got a hotline, and you can send an email  
3       to [allegation@nrc.gov](mailto:allegation@nrc.gov).    The NRC actually defines  
4       allegation fairly broadly, and so it would in fact  
5       capture concerns regarding the implementation of  
6       agreement state programs.

7               And so you can contact our NRC safety hotline  
8       or send an email to the [allegation@nrc.gov](mailto:allegation@nrc.gov).   And go to  
9       our website and look at the backgrounder on allegations,  
10      and that should give you some helpful information.

11              MR. CAMERON:   Okay.   Thank you very much,  
12      Lisa.

13              Let's go for any questions or comments on --

14              DR. ESH:   Chris Grossman noted that the  
15      figure that you couldn't read, that flow chart, is  
16      figure 4.2 in NUREG 2175, not 4.1.

17              MR. CAMERON:   Okay.   Thank you for that  
18      clarification, Chris.

19              Let's go to Karen Hadden here in Austin.

20              Karen?

21              MS. HADDEN:   Could you do some clarification  
22      on the point that you made about the individual sites  
23      setting the policies?   What portion of things do they  
24      set?   What portion is still NRC?

25              DR. ESH:   With respect to the intruder

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1 assessment, the analysis -- in the proposed regulation  
2 right now, the individual sites would do their intruder  
3 dose assessment, which they would set all the parameters  
4 of the intruder dose assessment, and then that would be  
5 evaluated by the appropriate regulator, so right now  
6 they're all agreement state programs; the agreement  
7 state regulators would evaluate them.

8 If it was an NRC licensee, we would evaluate  
9 the parameters of that dose assessment, just like if it  
10 was a dose assessment under 61.41. But they would set  
11 all the parameters.

12 They would say, here's our receptor, here's  
13 the pathways that they're going to be exposed to, here's  
14 their consumption rates, here's the plant-to-soil  
15 transfer factors, all the things that go into that  
16 analysis, the licensee would set and then be reviewed  
17 by the regulator.

18 MS. HADDEN: And then could there be a  
19 challenge on behalf of the regulator, because that, as  
20 a member of the public, concerns me greatly. I do not  
21 have faith and confidence that we will see good strong  
22 parameters set.

23 DR. ESH: Right. Yeah. The -- number one,  
24 that sort of analysis -- all those sorts of analyses  
25 should be publicly available, so that the stakeholders

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1 are able to review them themselves.

2 The regulator should review all those in  
3 detail and document their review of them, that the  
4 public stakeholders could also review. And then you,  
5 during the licensing process, should be able to raise  
6 concerns about those analyses, if you have them,  
7 whatever it might be: the scenario's parameters,  
8 receptors, et cetera.

9 MS. HADDEN: I would like to comment that  
10 that is an incredibly difficult burden to place upon the  
11 citizens, and I feel that in this case NRC is walking  
12 away from their duty and ought to come in with a heavier  
13 hand and be more involved in setting those parameters  
14 at every site and having some kind of standardization,  
15 because otherwise I don't think the public is being  
16 protected.

17 DR. ESH: Right. I understand your comment.

18 MR. CAMERON: Thank you, Karen.

19 Larry?

20 MR. CAMPER: Yeah. I want to make a comment  
21 on this intruder protection, especially going to the  
22 young lady's comment.

23 We understand your comment, and it's a valid  
24 comment for regulators who review the applications to  
25 assess the scenarios that are chosen by the applicant

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1 and ensure that it's the right set of scenarios, that  
2 it's a realistic set of scenarios that will protect  
3 public health and safety.

4 But it's very important to put this in  
5 context. Today, in our regulations, 61.42, there's a  
6 requirement that the intruder is protected. The  
7 intruder is protected via the current system by the  
8 waste classification tables in 61.55.

9 In other words, years ago, when the  
10 regulation was developed, the staff undertook an  
11 analysis for an inadvertent intruder and determined  
12 that if the concentrations of waste that are set forth  
13 in the table are maintained and disposed of at those  
14 levels, the inadvertent intruder will be protected.

15 The primary radionuclide driving the dose in  
16 that analysis was cesium-137, and the 500-millirem was  
17 the assumed dose limit for that analysis.

18 What is distinctly different now is that the  
19 dose of 500 millirem is not implied; it is explicit. It  
20 is a requirement. And in addition to relying upon the  
21 waste classification tables, the operator is required  
22 to undertake an intruder analysis.

23 So there will be a lot more visibility and  
24 specificity in that intruder analysis, as compared to  
25 the modeling that was done 30 years ago.

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1 MS. HADDEN: Isn't Ce-137 one of the four  
2 so-called phantom radionuclides that are attempted to  
3 be basically not paid attention to anymore?

4 DR. ESH: No, cesium-137 -- carbon-14 I  
5 believe is what you're referencing.

6 MS. HADDEN: Yeah, and there's several  
7 others.

8 DR. ESH: Right.

9 MS. HADDEN: Is that not one of them?

10 DR. ESH: Not cesium-137, no.

11 MS. HADDEN: All right. Thank you.

12 MR. CAMERON: Okay. Amber, does anybody on  
13 the phone have a question or comment.

14 THE OPERATOR: We do have a question from  
15 Diane.

16 MS. D'ARRIGO: Hello?

17 MR. CAMERON: Hi, Diane. Go ahead.

18 MS. D'ARRIGO: Hi. I am still stuck on the  
19 intruder issue, and it may have been implied that  
20 intruders could get 500 millirems before, but when  
21 siting was going on, people in communities -- the  
22 impression was given -- and I was at many, many, many  
23 of those sitings -- under the current 10 CFR 61, that  
24 the intruders would be protected to the same amount as  
25 the people during the license control period.

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1           And I think that going to expressly and making  
2           this be a 500-millirems dose, it's not an acceptable  
3           dose anymore. We know that radiation is more harmful  
4           than previously thought; that's what we're finding out  
5           with every new BEIR report.

6           And it's not okay. I mean, my comment once  
7           again is to not weaken anything, that the standards  
8           should be no weaker than before and should only bother  
9           to change it if it's going to be more protective for the  
10          public.

11          And with this intruder scenario, not  
12          protecting -- maybe somebody now thinks it's not very  
13          likely that someone in 100 or 300 or 500 years is going  
14          to move in somewhere, but I don't have a lot of faith  
15          in the judgment of the people who are making the  
16          decisions right now.

17          MR. CAMERON: Okay. Thank you, Diane.

18          And, Larry, did you want to say anything?

19          MR. CAMPER: I do.

20          Diane, I don't want to get into a debate with  
21          you about these health physics issues. We certainly  
22          would love to have your comments, and I would greatly  
23          appreciate seeing that.

24          But by the same token, it is important to put  
25          some perspective on some of the points that you're

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1 making. The notion that -- the very model, the linear  
2 nonthreshold model that is used for conducting the  
3 regulations is an extremely conservative model that is  
4 increasing being called into question as being overly  
5 conservative by the --

6 MS. D'ARRIGO: By who?

7 MR. CAMPER: By the professional health  
8 physics community.

9 MS. D'ARRIGO: The people who make  
10 radioactive waste.

11 MR. CAMPER: They are professional health  
12 physicists, Diane.

13 MS. D'ARRIGO: They're the people who make  
14 the waste.

15 MR. CAMPER: All I'm saying --

16 MS. D'ARRIGO: Talking about medical people  
17 who care about the public and their health.

18 MR. CAMPER: All I'm saying is I think it's  
19 important to put this type of discussion into  
20 perspective; that's all I'm saying.

21 MS. D'ARRIGO: Uh-huh.

22 MR. CAMPER: And the other point I want to  
23 make -- and I was going to make it in my closing  
24 comments, but since we're having this discussion, it's  
25 a good time to bring it up.

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1           The 500-millirem -- we had extensive  
2       discussions with our Advisory Committee on Reactor  
3       Safety, the ACRS and really pushed the staff on the  
4       notion that essentially, by allowing 500 millirem,  
5       you're assuming that it occurs, it occurs in limited  
6       fashion.

7           The ACRS --

8           MS. D'ARRIGO: That what occurs? I'm sorry,  
9       Larry.

10          MR. CAMPER: An intruder occurs. The ACRS  
11       really wanted the staff -- they pushed the staff to  
12       calculate an intruder entering the waste.

13          We discussed with the ACRS that the  
14       probability of occurrence of that would be something on  
15       the order of  $10^{-8}$ ,  $10^{-9}$ , very low occurrence of  
16       probability, especially when you look at all the  
17       parameters that are set forth in the assumption for the  
18       intruder that Dave just went through.

19          So the notion that we essentially assume that  
20       it happens and allow the dose to an individual one time  
21       is the basis for that happening, as opposed to going  
22       through a much --

23          MS. D'ARRIGO: What do you mean, one time?  
24       It's 500 millirems per year, with no number on the -- no  
25       limit on the number of years.

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1 MR. CAMPER: The intruder's not going to  
2 repeatedly invade the waste.

3 MS. D'ARRIGO: No, if they don't know that  
4 they're invading it --

5 MR. CAMPER: I just tried to put  
6 clarification --

7 MR. CAMERON: Okay. I think -- and, Diane,  
8 I don't want you to get the impression that -- your  
9 comment on this was heard, and it is considered as a  
10 formal comment, and also the questions that you're  
11 asking are being heard by the staff and will be  
12 addressed, so thank you for that.

13 And, Amber, is anybody else on the phone?

14 THE OPERATOR: There are no other questions  
15 on the phone line at this time.

16 MR. CAMERON: Okay. David, you want to go to  
17 the next topic?

18 DR. ESH: Sure.

19 MR. CAMERON: Okay.

20 DR. ESH: The next topic is the second tier  
21 of the analysis timeframe approach; it's called the  
22 protective assurance analyses.

23 As I indicated earlier, this is required for  
24 all types of low-level waste. What's being proposed is  
25 basically an optimization type process, rather than

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1 comparison to a dose limit, where the objective function  
2 of the optimization process is to minimize the doses.

3 Now, what we're advocating in our guidance  
4 document is that the simplest approach to do this is just  
5 to go ahead and extend your performance assessment and  
6 intruder assessment analyses and use the results of  
7 those in this minimization process.

8 The approach and guidance that we're -- that  
9 I'll talk about in a little more detail is basically one  
10 where if you have high risk, then you should be looking  
11 at high effort. And if you have low risk, then you  
12 should be looking at low effort with respect to the risks  
13 in these timeframes.

14 And we think that makes sense; that's  
15 generally what we would want people to do. We wouldn't  
16 want you spending a lot of money if your risks are low,  
17 and conversely we wouldn't want you spending a little  
18 bit of money if your risks are high.

19 Next slide, please. So this is a figure from  
20 the guidance document that we tried to outline what you  
21 might be doing in this protective assurance analysis  
22 period.

23 And we defined some levels, where Level 0  
24 would be a minimal amount of additional effort that you  
25 may need to do, basically a few millirem. And this is

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1 similar to the as low as reasonably achievable approach  
2 applied under the compliance period.

3 Under Level 1, then that has a kind of a  
4 threshold of somewhere around 25 millirem; you do  
5 increasing effort as you go up the scale.

6 So the Commission gave us language about the  
7 target for the optimization process, but the one thing  
8 to understand is the 500 millirem that's in the  
9 regulation for the protective assurance analysis period  
10 is not a dose limit. The objective is to minimize your  
11 impacts.

12 So that's a fuzzy line in the sand, is what  
13 you're given there. But what you should be trying to  
14 do is minimize your impacts to the extent practical for  
15 this protective assurance analysis period.

16 Next slide, please. So what we want to hear  
17 from you about is these requirements, whether you think  
18 it makes sense to extend the performance assessment and  
19 intruder assessment or -- that's not the only approach  
20 you can use, as the guidance document talks about, but  
21 we think that's the simplest one, that -- based on the  
22 fact that you will have already invested in doing that  
23 analysis for the compliance period.

24 The fact that we're defining it as an  
25 optimization approach, this could have been assigned a

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1 dose limit and treated similar to the compliance period.  
2 That's not a direction that we received from the  
3 Commission; the fact that the target is going to be  
4 minimization.

5 And that diagram that I talked about on the  
6 previous slide is really one of risk-based discounting,  
7 so when risk is high, effort is high; risk is low, effort  
8 is low. That's what we're talking about. So I think  
9 that's what we have.

10 MR. CAMERON: Okay. Questions, comments  
11 from anybody in Austin on this particular topic?

12 (No response.)

13 MR. CAMERON: Amber, we're going to go to the  
14 phones again. Does Diane or anybody else have a  
15 question or comment on this?

16 THE OPERATOR: There are no questions on the  
17 phone line at this time.

18 MR. CAMERON: Okay. Thank you very much.

19 We're going to go on to the next topic then.

20 DR. ESH: I didn't even get a chance to get  
21 a drink.

22 Performance period analyses is the next  
23 topic. It's applicable to times after the 10,000  
24 years, and the important thing to note about this is it's  
25 only to be applied if sufficient waste is present.

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1           We developed a new table, Table A, which  
2 provides concentrations, which is the trigger point to  
3 when somebody would need to do that analysis or not.

4           The concentrations in Table A are the Class  
5 A waste concentrations, with two important differences:  
6 one, that the concentrations are to be based on facility  
7 average, so make it simply: Take your whole volume or  
8 mass and average your whole activity over it, because  
9 all you're trying to decide is, do I need to do this  
10 analysis or not? So we wanted to keep that as simple  
11 as possible.

12           The other important distinction is we  
13 modified the Table A or the Class A waste concentration  
14 values to change from long-lived transuranic  
15 radionuclides to all long-lived alpha-emitting  
16 radionuclides.

17           So essentially this adds uranium into the mix  
18 to consider, as well as come other isotopes, so that  
19 issue of 61.55(a) by default and things not being  
20 analyzed properly, possibly, that is remedied by this  
21 change with respect to the performance period analyses.

22           So all essentially long-lived waste would get  
23 evaluated during the performance period.

24           And the objectives of this analysis are one  
25 of -- in my mind, at the highest level it's to

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1 communicate how you think your system is going to  
2 perform for these timeframes; what do you expect to  
3 happen; how are the design features and site  
4 characteristics going to work to reduce the risk?

5 You do want to minimize the impacts to the  
6 extent reasonably achievable, but this is over very long  
7 timeframes, that how much you can actually minimize  
8 those impacts may be of question.

9 But at a minimum you should be communicating  
10 with your stakeholders to the best of your ability what  
11 you think you impacts are. I mean, in Texas I think you  
12 do that right now with your requirements of needing to  
13 go to 1000 years or peak dose. You're trying to have  
14 your licensee communicate with your stakeholders what  
15 you think those long-term impacts are.

16 So this part of the regulation might not be  
17 that much different in Texas as it possibly could be in  
18 some other states.

19 Next slide, please. So this is the Table A  
20 values. It's a little bit modified from what's in the  
21 proposed regulation, because we did have some comments  
22 about it in the last meeting, some things that were  
23 confusing.

24 In the waste classification tables in the  
25 existing regulation and in the proposed regulation,

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1 there were some superscripts added to the numbers under  
2 the concentrations, which could make it confusing as to  
3 what the number is.

4 So for instance, 10 had a superscript of 3  
5 after it, so somebody could interpret that as 1000 or  
6 10-cubed. So just for presentation purposes now, I  
7 changed that so it was clearer what -- people didn't get  
8 confused by the numbers, and that is definitely a change  
9 that I think we'll make in the final regulation, because  
10 I think that is confusing.

11 But anyway, this is a table that communicates  
12 those average concentrations that trigger when you  
13 might need to do this very long-term analysis.

14 Next slide, please. And there is a  
15 description of words as to what it is. Well, the one  
16 thing I didn't highlight yet: In the fourth line down,  
17 it says "or if necessitated by site-specific  
18 conditions."

19 So what that is an acknowledgment of is we  
20 don't anticipate it, but you could have specific  
21 conditions at your site where maybe the risks could be  
22 higher, even though you're below these Table A  
23 concentrations.

24 In the guidance document we outline what are  
25 the types of conditions where maybe that could happen,

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1 so that if you are close to, say, the Table A values and  
2 then you look and find in the guidance document, hey,  
3 I have some of these conditions, then maybe you should  
4 do that analysis anyway, even though, you know,  
5 technically you're below the Table A values, and  
6 therefore you wouldn't necessarily have to do it.

7 So it is a -- it's fairly firm trigger, but  
8 there is a caveat there that there may be special  
9 circumstances that would require further evaluation.

10 Next slide, please. This is an example from  
11 the guidance document where we developed a table of what  
12 are long-lived isotopes, including their half-lives,  
13 what progeny they may have, and generally there's a  
14 column there, low-level waste PA inventory -- low-level  
15 waste performance assessment inventory. That's if you  
16 common see these sorts of isotopes or you would be  
17 expected to see them in a low-level waste performance  
18 assessment.

19 So that's kind of an example of a tool in the  
20 guidance document to facilitate the review of the  
21 performance period analyses.

22 Next slide, please. So what we're seeking  
23 feedback on is this approach overall to it. It's also  
24 the use of the Class A values as the trigger for when  
25 you need to do it; the fact that we're defining averaging

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1 in a simple way over the whole facility average basis;  
2 and then that the requirement is just minimization to  
3 the extent reasonably achievable; there's no dose  
4 limits associated with this performance period  
5 analysis.

6 But in addition to that, one of the main  
7 objectives is to identify the features that contribute  
8 to limiting the long-term impacts. So what is acting  
9 in your system to help you reduce the risk over those  
10 long timeframes, if you still have risk over those  
11 timeframes.

12 I think that's it. Next slide. Yeah.

13 MR. CAMERON: Okay. Thanks, David.

14 Amber, why don't we go to the phones first and  
15 see if anybody has a question or a comment on performance  
16 period.

17 THE OPERATOR: There are no questions on the  
18 phone line at this time.

19 MR. CAMERON: Okay. And we'll check back  
20 with you in a minute or so, just to make sure that that's  
21 still the case.

22 Anybody here in Austin?

23 Okay. We have one question or comment back  
24 here. Scott Kirk. Scott.

25 MR. KIRK: Yes, thank you. Scott Kirk,

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1 Waste Control Specialists.

2 Larry, you've been to our site before; really  
3 pretty recently. We're really proud of our site; it's  
4 extremely robust. It has very impermeable clays; it's  
5 far removed from water tables.

6 When we modeled depleted uranium, we really  
7 showed the robustness of the site and not just the site  
8 characteristics but also the engineering features with  
9 it.

10 It's got that seven-foot liner system that you saw. You  
11 saw all the concrete and the modular concrete canisters  
12 that we use.

13 And as you and I had spoken, that -- you know,  
14 we looked at 1000 years, 10,000, even 20,000 years of  
15 a period of compliance. We looked at time periods much  
16 larger than that.

17 And what we clearly demonstrated is that a  
18 modern, new facility that's sited in an arid portion of  
19 the United States clearly has no problems meeting a  
20 period of performance of very long periods of time.  
21 That's a very good indicator for how well these  
22 facilities perform environmentally.

23 There was a -- at one time there was some  
24 thought that maybe the NRC would do an Environmental  
25 Impact Statement or something like that that would

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1 show -- or some sort of report that would show the  
2 robustness -- how much the industry has matured over the  
3 past 40 years.

4 And I think you -- I think it would behoove  
5 all of us -- the NRC, the public, we look to you to  
6 protect us -- to maybe sort of dust sort of those  
7 concepts off. I think what might be needed or could be  
8 done to generate a report, some sort of an evaluation  
9 that sort of captures about how far we've come over the  
10 past 40 years.

11 That's my comment.

12 MR. CAMERON: Thank you, Scott. Thank you.  
13 Larry?

14 MR. CAMPER: Thank you, Scott. Yes, I have  
15 been to the WCS site two or three times, as recently as  
16 January. Correct.

17 Let me speak broadly about your point. What  
18 Scott is pointing out is that if one goes and looks at  
19 the assumptions that were used in the Environmental  
20 Impact Statement which served as the regulatory basis  
21 for the existing Part 61, you'll find a set of  
22 assumptions and/or practices that have turned out to be  
23 quite different than was envisioned when that  
24 Environmental Impact Statement was done.

25 And when I say different, I mean, for example,

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1 the numbers of reactors that were assumed to have been  
2 decommissioned by this point in time is different. The  
3 actual operations of the sites are remarkably different  
4 than was envisioned by Part 61.

5 And certainly at the WCS site, and others, by  
6 the way, the other operating sites as well, things are  
7 being done that are far more operationally  
8 conservative, if you will, for lack of a better term,  
9 than was envisioned in Part 61.

10 I certainly have had an interest for some time  
11 in the fact that the Environmental Impact Statement that  
12 exists today doesn't reflect the actual operations that  
13 occur today.

14 And, yes, it would be nice if we could do an  
15 updated or a new Environmental Impact Statement,  
16 actually. However, we did ask that question or explore  
17 that question with this rulemaking, in fact, and  
18 determined that there was no legal obligation to do a  
19 new Environmental Impact Statement to support this  
20 rule; rather it would be an environmental assessment.

21 Environmental Impact Statements cost a lot of  
22 money, and they take a lot of time. And it would be nice  
23 if we could document in an EIS the current state of  
24 affairs; we certainly would agree with that. But  
25 it's -- you really have to have a compelling reason to

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1 do that when it -- given the cost that it takes.

2 It would probably cost 2-1/2 to \$3 million to  
3 do a new Environmental Impact Statement. But there may  
4 be other ways that things could be documented for public  
5 awareness as to the actual operational integrity that  
6 exists today, as compared to what was envisioned in Part  
7 61 when it was developed back in 1978 and 1979 and went  
8 into effect in 1982.

9 MS. LONDON: I'm stealing Chip's mic to sort  
10 of tip off of something that Larry said.

11 The Commission always has the discretion to  
12 instruct staff to conduct an Environmental Impact  
13 Statement, and certainly this comment is going  
14 officially on record, so it's a comment that can be  
15 delivered to the Commission as a part of this  
16 rulemaking.

17 MR. CAMERON: Thank you, Lisa.

18 And, Amber, anybody on the phone on  
19 performance period? Just checking back with you.

20 THE OPERATOR: Yes. We do have a question or  
21 comment from Diane.

22 MR. CAMERON: Okay.

23 MS. D'ARRIGO: I'm going to wait till later.

24 MR. CAMERON: Okay, Diane. We'll be back to  
25 you later.

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1 And, David, safety case next?

2 DR. ESH: Right.

3 MR. CAMERON: All right.

4 DR. ESH: Okay. So the next area I'm going  
5 to talk about are safety case and defense-in-depth  
6 protections. The first couple of slides are to present  
7 to you -- some of you may be familiar or may not be  
8 familiar with the safety case under the International  
9 Atomic Energy Agency.

10 So the IAEA approach to safety case is really  
11 comprehensive. This figure on the right of slide 38 is  
12 from the specific safety guide number SSG-23 that  
13 basically shows the components of the safety case under  
14 IAEA.

15 Now, in a few slides, whenever we have  
16 our -- NRC's proposed definition of safety case, I would  
17 argue that it's functionally similar to what the IAEA  
18 has here under the components of their safety case, at  
19 least in this diagram.

20 When you read the IAEA's document, they  
21 include a lot more within safety case; it involves, say,  
22 site acceptance at the initial site selection stage, and  
23 there's a whole variety of other things like that that  
24 are not necessarily within the NRC's low-level waste  
25 regulation.

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1           So in some of those ways, what we have is a  
2           little bit different, but when you look at the -- when  
3           you have a chance to read the definition and consider  
4           this figure, I would argue that they line up pretty well.

5           Safety assessment is an important component  
6           of this over safety case, but it's just one. In our  
7           view, under Part 61, what you may have done in the past  
8           for your licensing of a low-level waste facility is  
9           essentially your safety case.

10          So all the things that go into your licensing,  
11          from, say, the safety strategy, your system  
12          description, all the way down to the particular  
13          technical analyses, and then your license conditions  
14          and other limits and controls that may show up here on  
15          the box IAEA identified as G, all those things and your  
16          low-level waste licensing are your safety case.

17          So we feel like existing facilities have been  
18          doing a safety case; this just makes it more formal.  
19          You'll see it show up a few cases in the proposed rule  
20          text that somebody has to more clearly elucidate what  
21          their safety case is and the components of it.

22          So next slide, please. So this is also from  
23          the IAEA; it's their safety assessment. We focus a lot  
24          on the middle box of this, the post-closure radiological  
25          impact: scenarios, models, calculations. But it has

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1 some other components to it, too, in IAEA, under safety  
2 assessment, that are shown here on the figure.

3 So now if we go to what NRC is proposing on  
4 slide 40, this is basically our approach to safety case  
5 and defense-in-depth. At the high level the proposed  
6 rule is to include discussion of the safety case and  
7 defense-in-depth protections.

8 The safety case for long-term safety in 10 CFR  
9 Part 61 has the two primary components here, but as I  
10 already noted in my comments, it's really the  
11 combination of all the licensing information is your  
12 safety case.

13 But it's technical analysis combined with the  
14 defense-in-depth components. And so your licensing  
15 information is to explain how the combination of  
16 defense-in-depth and performance assessment should be  
17 used to support the licensing decision.

18 Now, in this box at the bottom here, this is  
19 a definition of defense-in-depth; it's used at NRC for  
20 other NRC programs. We have adopted the same  
21 definition here in the waste arena. We discussed it in  
22 detail. We didn't come up with a good reason for why  
23 we should come up with a new definition; we also felt  
24 it might be confusing to people to have multiple  
25 definitions, so that's the waste defense-in-depth

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1 definition, which is different than this.

2 But the important parts to note of this is  
3 defense-in-depth conceptually is the use of multiple,  
4 independent, redundant layers of defense so that you  
5 aren't relying on a single layer.

6 That's important to note, so we had a question  
7 at our previous meeting about, well, does this mean I  
8 need to have, say, you know, two geomembranes or two  
9 leachate collection systems or whatever the case may be.

10 No. That's not the case. The  
11 defense-in-depth for your low-level waste system is the  
12 combination of all your barriers, limits, controls that  
13 contribute to reduce the risk and limit safety.

14 But you also will need to demonstrate that you  
15 aren't relying on just one single component of the  
16 system to meet your safety argument. So say you came  
17 up with the best alloy in the world that you thought was  
18 going to last forever, and your site was really crummy  
19 besides that. That would not satisfy this  
20 defense-in-depth as is being proposed in this  
21 regulation.

22 Next slide, please. So there's the words  
23 associated with it. I would say go ahead and compare  
24 that to the figure that I -- that we just had up. I  
25 think it has all the similar elements to it that we're

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1 trying to achieve with respect to the safety case.

2 Next slide, please. So what we're seeking  
3 feedback on is that definition -- the definition for  
4 defense-in-depth and safety case. We have concepts  
5 associated with that. As I caveated earlier, those  
6 aren't requirements similar to other requirements.

7 We do have requirements for a safety case.  
8 This whole area, defense-in-depth and safety case is at  
9 a very high level, so it doesn't get very specific as  
10 to what especially you need to do.

11 In the guidance document we describe various  
12 ways that you may demonstrate defense-in-depth, so  
13 there's different presentations of barrier analysis,  
14 for instance, that you might use to try to show how you  
15 have defense-in-depth in your system.

16 We have new technical analysis requirements  
17 for defense-in-depth, but it really doesn't say much  
18 more than that. It basically says provide  
19 defense-in-depth technical analyses. I don't remember  
20 the exact words.

21 And then also, similar to the performance  
22 assessment and intruder assessment, there's a  
23 requirement to update the defense-in-depth analyses at  
24 closure. I think that's it for this.

25 MR. CAMERON: Okay. Anybody in Austin,

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1 questions or comments?

2 (No response.)

3 MR. CAMERON: And, Amber, does Diane or  
4 anybody else have a comment or question on the phone?

5 THE OPERATOR: There's not any questions on  
6 the phone line at this time.

7 MR. CAMERON: Okay. David, let's go to  
8 waste acceptance criteria. And I think we're going to  
9 have a number of comments in the other category, so let's  
10 finish this one off.

11 DR. ESH: Right. Okay.

12 Waste acceptance: We have new requirements  
13 for developing waste acceptance criteria using  
14 either -- this is a "or" approach -- the 61.55 waste  
15 classification system or the site-specific waste  
16 acceptance criteria.

17 So in one case, the 61.55 waste  
18 classification system is basically NRC's early 1980s  
19 analysis. The site-specific waste acceptance criteria  
20 would be the licensee's analysis evaluated by the  
21 regulator in, you know, today or a future timeframe.

22 This is found under 61.58 in the NRC's  
23 regulations. 61.58 existed before; it's as modified  
24 section now. The focus is on three areas, so the waste  
25 acceptance criteria, waste characterization, and waste

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1 certification. All those things combine together to  
2 provide your waste acceptance for -- to determine if the  
3 waste is suitable to dispose of at your site.

4 Next slide, please. So waste acceptance;  
5 I'm going to read this one: "Demonstrating compliance  
6 with the performance objectives also requires a  
7 determination of criteria for the acceptance of the  
8 waste. The criteria can be determined from the results  
9 of the technical analyses that demonstrate compliance  
10 with the performance objectives for any land disposal  
11 facility or, for a near-surface disposal facility, the  
12 waste classification requirements of subpart D of this  
13 part."

14 So it's an "or" approach to waste acceptance  
15 or waste classification. It is to be applied -- the  
16 "or" means that basically the site-specific analyses  
17 can be used, or NRC analyses.

18 Next slide, please. So what we're going to  
19 seek feedback on is this "or" approach: the concepts  
20 regarding waste acceptance and the requirements for  
21 waste acceptance.

22 I should note that the waste acceptance  
23 process is used in other programs, and it used  
24 domestically within the Department of Energy. It's a  
25 way of providing the specific -- site-specific

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1 requirements for your waste to determine whether it's  
2 suitable for disposal at a particular location.

3 NRC does have additional waste  
4 characteristic requirements under 61.56. Those are  
5 still present, so you still have the waste  
6 characteristic requirements that you have to meet for  
7 receiving and disposing of waste, but this is really  
8 focused on what are the radiological concentrations  
9 that are appropriate for my particular site, and do I  
10 use the waste classification tables, the early-1980s  
11 NRC analyses, or do I use the site-specific analyses to  
12 determine them.

13 So I think that's it.

14 MR. CAMERON: All right. Anybody here in  
15 Austin have any comments or questions on waste  
16 acceptance criteria?

17 (No audible response.)

18 MR. CAMERON: Well, let's check in with  
19 Amber -- oh, Scott Kirk. Okay. And then we'll go to  
20 Amber.

21 Scott?

22 MR. KIRK: Yes. This question's just for  
23 clarification. When I read the proposed rule, 61.58  
24 has the provisions. You can either use classification  
25 tables or you can develop your own site-specific

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1 analysis and develop your waste acceptance criteria.

2 But the -- and it's a compatibility level B,  
3 which means the agreement states have to have that rule  
4 almost essentially verbatim. But it talks about the  
5 applicant. I mean, it implies that the applicant makes  
6 that decision. The applicant makes the decision  
7 whether they want to use the waste classification tables  
8 or if they want to do the site-specific analysis.

9 In the preamble to the rule and the language  
10 in there, it also talks about the role and the importance  
11 of the agreement states and also the importance of the  
12 compact system, because they relied on the  
13 classification system for decades now.

14 And so my thought is that the agreement states  
15 ultimately do have a say-so whether the classification  
16 tables are used, or whether or not a licensee can use  
17 a site-specific. The decision whether it's going to be  
18 used or not doesn't lie solely with the applicant?

19 And that's just a question for clarification.

20 MR. CAMERON: Good.

21 Larry?

22 MR. CAMPER: Yeah, Scott. Thank you for the  
23 comment.

24 Correct. The idea that the Commission has  
25 here is -- was to provide an "or" pathway whereby the

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1 operator, in accordance with its regulator, could  
2 choose to rely upon the waste classification scheme or  
3 the waste acceptance criteria. The Commission is very  
4 clear; it's "or."

5 Now, there are a lot of operational if not  
6 political realities around that. A classic example  
7 would be the site in Utah, which is limited to Class A  
8 at this point in time.

9 But based upon its waste acceptance criteria,  
10 it might demonstrate that it could dispose of waste in  
11 excess of the concentrations of Class A. In fact, that  
12 site once upon a time was approved for Class A, B, and  
13 C waste but today only accepts Class A waste.

14 But the fact of the matter is it will  
15 ultimately be up to the regulator, in conjunction with  
16 the operator, as to which is used: classification  
17 table or WAC.

18 Now, the WAC, as you also pointed out, just  
19 for everyone's gratification who doesn't follow this  
20 stuff, these sites have all developed waste acceptance  
21 criteria and have so for years.

22 What's different is in the regulation the  
23 Commission is giving a pathway to use either the waste  
24 classification table or the WAC. But there's a lot of  
25 operational real world realities that have to be brought

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1 to bear on that point.

2 MR. CAMERON: Anybody else have a follow-up  
3 or question on waste acceptance?

4 (No response.)

5 MR. CAMERON: Amber, does anybody on the  
6 phone have something to say on waste acceptance  
7 criteria?

8 THE OPERATOR: Yes. We do have a comment or  
9 question from Diane.

10 MR. CAMERON: Okay.

11 MS. D'ARRIGO: Hi, Diane again. I wanted to  
12 express a little concern with the tone of this whole  
13 thing, which is directed to the facility operators, the  
14 waste generators, and really not to the public who's  
15 supposed to be being protected.

16 MR. CAMERON: Okay. And, Larry, do you want  
17 to say something about that?

18 MR. CAMPER: Well, I do. Actually the  
19 regulation is the regulation that the regulators in the  
20 states use to license a low-level waste disposal  
21 facility. The existing agreement states that have the  
22 sites have essentially adopted this regulation in whole  
23 cloth today, with only minor exceptions.

24 The new requirements that we are imposing in  
25 this regulatory rulemaking, as I mentioned in my opening

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1        comments, the expectation is that the agreement states  
2        would utilize these new requirements for the purpose of  
3        protecting public health and safety.

4                So it is really the regulator in the agreement  
5        state is the primary recipient of this modification to  
6        the regulations, and then in turn the operator or the  
7        applicant, as reviewed by that specific state  
8        regulator, be it Texas or South Carolina or Washington  
9        or Utah, currently.

10              MR. CAMERON:    Okay.    And, Diane, do you have  
11        a follow-up at all?    I think you're --

12              MS. D'ARRIGO:    It's just -- it's a bit  
13        frustrating, because it's so evident.    There's really  
14        not much that I can say that I feel is going to have any  
15        real meaning regarding concerns about public health  
16        protection.

17              And so I'm at this point -- I guess the only  
18        thing I would try to point out, maybe for future  
19        meetings, is that the comments are so specifically  
20        directed to Here's how you can have a choice between how  
21        you want to justify putting this waste in.

22              And I'm appalled by the fact that -- by the  
23        suggestion that it would be okay to average over the  
24        entire site, if I'm understanding that properly.    I  
25        remember when NEI first brought that up, and it was

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1       appalling at that time.

2                   And now it's now becoming part of regulations  
3       that the whole site is going to leak all together in one  
4       fell swoop.

5                   MR. CAMERON: I think that the NRC will keep  
6       that in mind --

7                   MS. D'ARRIGO: Oh, I'm sure.

8                   MR. CAMERON: -- and make sure that context  
9       at least is given in the future meetings, that it's about  
10      protection of public health and safety.

11                  DR. ESH: Well, one clarification with  
12      respect to the averaging is that it's not averaging over  
13      the -- say the -- the confusing part is existing Part  
14      61, in my mind, defines "site" and "facility" backwards.  
15      Okay?

16                  So when I think of site, I think of the  
17      boundary of the fence around the whole thing, and when  
18      I think of facility, I think of where you're putting the  
19      waste in the disposal units type of thing.

20                  It's used backwards in the regulation right  
21      now, which I think can be confusing. And so when we're  
22      talking averaging, we're talking averaging over the  
23      disposal units where you're putting the waste, not over  
24      the whole boundary of the facility, which might be a lot  
25      larger than where you're actually placing the waste, so

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1 just a clarification.

2 MS. D'ARRIGO: Okay. So it's clarified  
3 somewhere in writing in the proposed rule that you don't  
4 mean what you said right in this thing, but that you mean  
5 over each cell, and a cell being one trench or one --

6 DR. ESH: Right. The language --

7 MS. D'ARRIGO: -- burial area?

8 DR. ESH: I think the language in the  
9 proposed regulation is clear, and I just wanted to  
10 clarify how those terms are defined in Part 61, and it's  
11 used to average over the area that's where the waste is  
12 disposed of, including the fill material or the  
13 boundaries between those cells. It's not the boundary  
14 of the whole large site, which may be a lot different.

15 MR. CAMERON: And let's hear from Chris  
16 McKenney on this.

17 MR. MCKENNEY: Now, there are two different  
18 types of averaging still in the rule or going into the  
19 rule totally.

20 There is the averaging that Dave discussed  
21 earlier, which is only for Table A, which is where you  
22 are estimating whether you have enough long-lived  
23 material in the site to do the analysis past the  
24 10,000-year period.

25 Use of the --

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1 MS. D'ARRIGO: I don't know what you just  
2 meant by that. Could you say that again?

3 MR. McKENNEY: There are three periods of  
4 analysis for the rule.

5 MS. D'ARRIGO: Uh-huh.

6 MR. McKENNEY: There's the one up to 1,000  
7 year, the one to 10,000 year, and the 10,000-and-beyond  
8 analysis.

9 For the beyond-10,000 analysis, we've put in  
10 the proposed rule Table A, which evaluates how much  
11 long-lived waste you have in your facility. If, when  
12 you average all of your long-lived waste, you are over  
13 the --

14 MS. D'ARRIGO: In the whole facility --

15 MR. McKENNEY: Yes.

16 MS. D'ARRIGO: -- or in each trench?

17 MR. McKENNEY: Over the whole facility.

18 MS. D'ARRIGO: Okay.

19 MR. McKENNEY: And are over Table A, then you  
20 have to do the analyses. We are not changing anything  
21 about the fact that, if you use the standard Class A,  
22 B, C tables -- we are not changing that those are by  
23 package.

24 Those two tables that are already in the  
25 regulation are still on a per-package averaging basis.

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1 Those are not averaged over the facility; those continue  
2 to be averaged over the package.

3 MR. CAMERON: Okay. Thank you.

4 Let's go to the other category. I think you  
5 had some things that you wanted to say. Correct?

6 DR. ESH: We have one slide on guidance  
7 document, and then --

8 MR. CAMERON: Oh, we do?

9 DR. ESH: Yes.

10 MR. CAMERON: Okay. Go ahead.

11 DR. ESH: So --

12 MR. CAMERON: Oh, on the guidance. Right.

13 DR. ESH: Right. And so each time I do this  
14 presentation, I acknowledge some people, and I have  
15 acknowledged different people every time, so I'll give  
16 you a couple of new people this time: Cynthia Barr  
17 worked with us on this guidance document significantly,  
18 and Hans also, and then we had a number of technical  
19 reviewers: Christian Ridge, Karen Pinkston, and Tim  
20 McCarten, among others. So I just wanted to just give  
21 some acknowledgment to some people that worked on it.

22 So when you start with this document, spend  
23 some time on chapter 1; that's going to give you the  
24 overview and context and then help you through the rest  
25 of the document. We tried to provide a lot of examples,

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1 tables, and figures, so it's not just all words and text.

2 Chapter 11 describes the use of other NRC  
3 guidance documents, so if I have this and I have  
4 something else, how do they relate or how do I use it?  
5 It is 434 pages; it has 18 pages of references.

6 At the last meeting we had, I said, you know,  
7 you had about 90 days left, so you have to read five pages  
8 a day. We're now at like 75 days left, so you have like  
9 six pages a day to read if you still haven't started.  
10 Eventually you'll have a day left, and then you'll be  
11 my twin brother; he hasn't done anything yet.

12 (General laughter.)

13 DR. ESH: There's a glossary in it that  
14 defines -- I'm glad I got that on the record, by the way.

15 There's a glossary, by the way, that defines  
16 a lot of the terms in the document, and then we have some  
17 appendices, too, that I indicate here that have these  
18 hazard maps; there's the FEP screening process is in  
19 there; there's a couple examples on site stability.

20 So at the last meeting we had people question,  
21 how am I going to demonstrate that my site is stable.  
22 We put a couple examples in there. There's an  
23 engineered approach using, you know, basically robust  
24 rock covers to try to achieve long-term stability, and  
25 then there's also an example of more analysis-based

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1 approach of some analyses that was done by the  
2 Department of Energy to look at the West Valley site.

3 There's a caveat in there; we aren't, you  
4 know, proving or acknowledging that analysis, but the  
5 type of approach that they used and the modeling that  
6 they were doing is what you might use if you were using  
7 a modeling-based approach.

8 The ML number for the document is there on the  
9 bottom of the slide.

10 MR. CAMERON: Okay. Thanks, David.

11 Let's open it up here in Austin, and we're go  
12 to the phones on -- anything on the guidance? Remember  
13 the May 20 webinar on the guidance?

14 DR. ESH: Right. The May 20 webinar will be  
15 done by Chris Grossman, and it will be two hours focused  
16 solely on the guidance document.

17 MR. CAMERON: Okay. Thank you.

18 Joe?

19 MR. MUTH: Yeah, thanks, Chip. I appreciate  
20 it. Joe Muth from URENCO. Just one observation: I  
21 note that every time that Chip speaks to Amber and Joe,  
22 he looks up to the heavens, and I'm wondering how far  
23 up the chain that might go over there.

24 You don't have to answer that question.

25 A couple remarks and a question: First one

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1 has to do with previous public meetings. Considering  
2 the format of the public meetings prior to this, we had  
3 a panel discussion, and those panel discussions appear  
4 to be pretty useful from the standpoint of vetting out  
5 some questions and clarifying some things.

6 It's URENCO's opinion that at the closeout of  
7 all these public meetings that the NRC consider doing  
8 another panel discussion at the end to capture the  
9 significant thoughts and processes. So that's just a  
10 remark, please.

11 Another remark is URENCO doesn't think that  
12 the new burdens on licensees in host states have been  
13 adequately addressed. Previous commenters have  
14 identified the need for allowing the sites to have a  
15 completed -- complied with the existing regulations;  
16 that applying the new requirements on a case-by-case  
17 basis, consistent with Section 61.1(a).

18 So we would agree that the case-by-case basis  
19 application ought to be applied for those states or  
20 licensees. And that's just a comment also.

21 One question: The staff has an outstanding  
22 CA note from the Commission that, upon completion of the  
23 rulemaking, the staff should provide the Commission a  
24 recommendation on the need for rulemaking efforts for  
25 the waste classification tables.

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1           And, Larry, you spoke to this earlier in your  
2           introductory. Is it the staff's position that, upon  
3           implementation of the proposed rulemaking, that there  
4           would be no need for an additional rulemaking for the  
5           waste classification tables in 61.55?

6           And as a follow-on question, will the staff's  
7           position be clarified and published before the final  
8           rulemaking of 10 CFR 61?

9           MR. CAMPER: No. The staff has not reached  
10          a conclusion at this point as to whether or not there  
11          is an efficacy for doing a follow-on rulemaking.

12          We have a charge from the Commission, as you  
13          pointed out. That charge has been modified over time  
14          in different SRMs, and they're all there in my  
15          background.

16          We do owe a CA note to the Commission in which  
17          they specifically want the staff to -- when this  
18          rulemaking is complete, to clarify comments that were  
19          provided during the course of this rulemaking and what  
20          our impressions are of that.

21          We will do that as part of the proposed  
22          rulemaking package. The fundamental issue, though,  
23          that you face -- and one of the reasons why we cannot  
24          and should not reach a conclusion at this point as to  
25          whether or not there should be a second rulemaking,

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1 because although we're gathering comments about that  
2 question and we like to hear a lot about it, and we will  
3 communicate with the Commission about what we've heard,  
4 the issue is that there are -- the members of the public  
5 will not know what the final rule looks like until it's  
6 a final rule.

7 And then being able to comment upon their  
8 views about the efficacy for a second rulemaking, that's  
9 when that has to be vetted. So what the staff will do  
10 is communicate with the Commission what we've heard;  
11 communicate with the Commission about what we think we  
12 should do next to fully run that issue to ground; and  
13 then have further communication with the Commission.

14 It is at that point when the staff will reach  
15 its conclusions as to whether or not the staff views  
16 whether or not another rulemaking is in order.

17 So, no, we've not yet.

18 MR. MUTH: But you will at that -- at the  
19 completion of the rulemaking and upon briefing with the  
20 Commission at that point?

21 MR. CAMPER: We will at the completion of  
22 this rulemaking, reviewing the comments that we've  
23 heard thus far, determining what else that it is we need  
24 to do to allow the opportunity for the public to fully  
25 communicate with the NRC about whether another

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1 rulemaking is needed, based upon, at least in a great  
2 part, the conclusions in the final rulemaking that comes  
3 out of this effort.

4 MR. MUTH: All right. Thank you, Larry.

5 MR. CAMPER: Yeah. Here's a quote that's  
6 being referred to: "The CA note to the Commission  
7 should identify the specific comments that have been  
8 received on the need for a second rulemaking and clearly  
9 articulate the basis in accepting or dismissing those  
10 comments."

11 We will do that as part of this rulemaking;  
12 however, there's other things the staff has to do as well  
13 to communicate fully with the Commission around that  
14 question.

15 MR. CAMERON: Okay. Thank you, Joe.

16 Comments, questions?

17 Charles?

18 MR. McGUIRE: Thank you. Welcome to Texas.  
19 You know, if you can promise to make it rain every time  
20 you come, I know there's some drought prevention folks  
21 that might really love to -- that we might even buy your  
22 airplane ticket. I don't know; it's been that bad.

23 But I do thank you for coming. I thank you  
24 for choosing to come to the states that have disposal  
25 facilities and hold a meeting so the people can hear what

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1 you're saying, hear what you're presenting, form their  
2 questions. I think it will really help you get some  
3 comments.

4 Relative to a second rulemaking, I think we  
5 would quickly say that perhaps not only after you've got  
6 your rule completed -- keep in mind that as an agreement  
7 state, the four states that will be affected by this  
8 dramatically have to pass it into their rules, and I'm  
9 not sure you will really know what your needs are for  
10 additional rulemaking until you see the outgrowth of  
11 that. And that might even take a couple -- I think we  
12 have three years; we probably won't take that long.

13 But the -- I think that will -- I think that  
14 part of the feedback loop maybe should pay attention to  
15 before you make the call on a second rulemaking.

16 The other thing -- and I said this to you  
17 before, and I participated in the panel in DC, and I was  
18 honored to get to do that.

19 I want to reiterate the -- I think you're  
20 doing a wonderful job of trying to build consensus  
21 around this rule. I know just how hard that could be  
22 sometimes. I appreciate how hard you're working, the  
23 way you're communicating, letting us know what you're  
24 thinking, all of that. I certainly learned a lot in the  
25 process.

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1           And we don't really want -- in Texas we don't  
2 really want to suggest anything in our point of view,  
3 as agreement state regulatory agency, that would break  
4 down that consensus, but we took a stance, as we began  
5 to look at how we would deal with performance analysis,  
6 to say that we felt it was very important to look at a  
7 thousand years or peak dose.

8           And so I think we would say to the  
9 Commission -- the Commission has an option to give it  
10 a C compatibility where an agreement state could be more  
11 stringent if they wanted to be. I think we would  
12 suggest, based on what we've come to understand, that  
13 maybe it could be compatibility B, but then for everyone  
14 it needed to be a thousand years or peak dose.

15           We want to be sure that we are looking at the  
16 long-term impacts, and, you know, I can say -- you know,  
17 it was a real interesting day getting to embrace my inner  
18 geek, sitting around a conference table thinking about  
19 what a million years' performance analysis might all  
20 include.

21           And, you know, sometimes, you know, you have  
22 to smile; sometimes you can't pass a red-face test. But  
23 for sure, whether you can accurately model it or not in  
24 terms of scenarios and what could happen  
25 geographically, climate, all of those things, you can

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1 for sure roll out the radioactivity that might be  
2 accumulating in that hole in the ground.

3 That is reasonably predictable, and so the  
4 model gets a chance to look at increasing radioactivity,  
5 if you will, if that be the case. Now, if it's not the  
6 case, then peak dose probably occurs inside the thousand  
7 years.

8 But there would be some situations where peak  
9 dose might be well after a thousand or even 10,000, well  
10 into the future life. And we think it's important to  
11 at least get a look at what level of radioactivity would  
12 be there in terms of looking at performance.

13 And so, yeah, modeling something for a  
14 million years, I -- you know, that's -- we can always  
15 be criticized for even the thought that we might be able  
16 to do that. But we can certainly forecast the inventory  
17 and the radioactivity that would be there during that  
18 timeframe.

19 Thank you again for coming to Texas.

20 MR. CAMERON: Thank you, Charles.

21 I'm going to look up to the heavens one more  
22 time. Okay?

23 Amber, do we have anybody on the phone? Does  
24 Diane want to offer anything else?

25 THE OPERATOR: At this time we have no

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1 questions.

2 MR. CAMERON: Okay. And Steve Dembek, go  
3 ahead.

4 MR. DEMBEK: Yeah, Chip. I would like to  
5 touch on an issue that a couple of people here have  
6 touched on. Those are suggestions for how that we can  
7 improve these meetings, not improving the rule but  
8 improving the meetings.

9 Diane mentioned she was unaware of the April  
10 28 public meeting, and another comment about have  
11 another panel discussion.

12 If you have any suggestions for improving the  
13 meetings, please don't hesitate to contact me. You  
14 can, of course, mention it here today, but if you want  
15 to just -- if it's more of an administrative thing, you  
16 can contact me about improving these meetings.

17 And I want to tell you we have listened to some  
18 comments we've gotten already. The public meeting we  
19 had April 28, we had four slides per page to save paper.  
20 People couldn't read the slides. So you saw today we  
21 had two slides per page.

22 Dave mentioned in his presentation about how  
23 some people complained about some of the diagrams we  
24 had, so we've improved those diagrams.

25 If you have any suggestions at all, please

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1 don't hesitate to tell me, and also I just wanted you  
2 to be aware of why we're doing this in this fashion.

3 We try to get these meetings done up front so  
4 people could listen to what's happening in these  
5 meetings, read the transcripts, and then give us  
6 comments before the 120-day comment period was over.

7 So that was our reason for trying to load  
8 these meetings up front like we're doing. That's what  
9 I wanted to say on that.

10 MR. CAMERON: That's good. Thank you,  
11 Steve.

12 MR. DEMBEK: Oh, one more thing. Dave  
13 mentioned that the April 28 meeting was in a *Federal*  
14 *Register* notice. That was not in a *Federal Register*  
15 notice; it was actually the NRC's website, which is our  
16 official means for --

17 MR. CAMERON: It was on a public meeting  
18 notification.

19 MR. DEMBEK: Yeah. In the public meeting  
20 notification system. So sorry for any confusion on  
21 that.

22 MR. CAMERON: All right. And we always go to  
23 the NRC senior official to close the meeting out for us,  
24 and that is Larry Camper.

25 Larry?

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1 MR. CAMPER: Well, thank you, everyone,  
2 again, for being here. Thank all of those out there  
3 that have listened in tonight, and we appreciate all  
4 your comments.

5 It's a very important part of the process, and  
6 I can tell you candidly that the staff learns something  
7 new every time we do one of these. We hear something  
8 from a different perspective that causes us to go back  
9 and think about things more or differently. And that's  
10 good; that's part of the process.

11 What I like to do at the end of these things  
12 is always kind of go through and give my Aha moments or  
13 things that I take away that I will talk with staff more  
14 about, so I'll share those with you.

15 First, we heard a number of comments about the  
16 movement to using current ICRP methodology and some  
17 concerns about what that might imply. The ICRP, over  
18 time, has increasingly put out guidance that's designed  
19 to limit risk.

20 And using the most modern technology  
21 available for things such as organ-weighting factors  
22 and the like is good science; it's modern science. Now,  
23 there are different views about that, and we understand  
24 that, and we like hearing those views, and we appreciate  
25 the ones that we've heard tonight.

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1 But I would also point out that the TEDE  
2 approach, the total effective dose equivalent approach,  
3 does have built-in protection for deterministic dose to  
4 organs, and it's limited to 50 rem per organ.

5 So there is a deterministic component to  
6 that, which we didn't get into tonight, but it's very  
7 complex health physics, but using the most available  
8 science in the area of health physics is an appropriate  
9 thing to do.

10 But we like hearing these comments, and please do  
11 provide them in writing.

12 Compatibility has surfaced a couple of times.  
13 You know, it's interesting, the Commission -- if you go  
14 back and look at the specific direction they gave to the  
15 staff, there was an interest in consistency, as I  
16 pointed out, yet there's also some words in there where  
17 there's an interest in flexibility for the agreement  
18 states.

19 Any time we talk about any rulemaking and we  
20 talk about compatibility, there's always this challenge  
21 that exists in that, for both us and the agreement  
22 states. And so hearing the comments about the  
23 compatibility B -- Charles and others -- is extremely  
24 useful to us as we go back and communicate with the staff  
25 about what we're hearing.

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1           Siting stability brought up a number of  
2           comments tonight, and siting stability as it relates to  
3           a phenomenon going on now known as fracking; very good  
4           comments. It is important to be aware of phenomenon  
5           that are going in current terms and look at your  
6           regulations and ask yourself, Do the siting stability  
7           requirements seem to be state of art in addressing some  
8           of these kinds of things that are changing.

9           Dave I think did a very good job of discussing  
10          the current requirements in site stability in Part 61  
11          and some of the things that are built in to addressing  
12          that, even in these rule changes that we're addressing.

13          The intruder dose generated a great deal of  
14          commentary. There was a lot of discussion about what  
15          we're changing on the intruder dose and some of the  
16          assumptions that go into the intruder.

17          I think what's very important at this point  
18          in time is the Commission specifically directed the  
19          staff to require that there be an intruder analysis  
20          performed and that realistic scenarios be used. There  
21          was a comment raised about, well, what are those  
22          scenarios? That's a very fair question, and that's a  
23          fair question that the regulators should -- will have  
24          to ask themselves when they're reviewing an application  
25          for a low-level waste disposal site or renewing a

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1 license.

2 They should be taking a good hard look at  
3 those scenarios and are they realistic and all that  
4 information, by the way: the application, any  
5 RAIs -- requests for additional information -- that the  
6 regulator would ask is a matter of public availability,  
7 and it should be.

8 We do at the NRC still rely upon the linear  
9 non-threshold model. We got into that a bit. The LNT  
10 is a conservative approach. It's okay to use a  
11 conservative approach to establish your regulatory  
12 criteria.

13 The LNT is increasingly being questioned by  
14 professional organizations such as the Health Physics  
15 Society because of its known conservatism, and there are  
16 other models that we know are also quite effective in  
17 protecting public health and safety.

18 But the LNT has been the model of choice going  
19 back to the '50s and the '40s, primarily as a result of  
20 data coming out of the Hiroshima and Nagasaki events.

21 Phantom four was mentioned. Just so  
22 everyone understands, phantom four are four  
23 radionuclides -- carbon-14, tech-99, I-129, and  
24 tritium -- that are long-lived isotopes, and they're  
25 very mobile. As such, they are significant dose

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1 contributors to a low-level waste site.

2 In one of our guidance documents in NUREG,  
3 BR-0204, as a matter of fact, we actually require that  
4 the phantom four be assessed at the minimum levels of  
5 detection. And what that does is it overestimates the  
6 amount of those radionuclides that are disposed of at  
7 sites.

8 And we recently developed a regulatory  
9 information summary that talks about how licensees and  
10 operators may more accurately account for those four  
11 isotopes, because they are significant dose  
12 contributors.

13 The role of the Environmental Impact  
14 Statement came up. Scott Kirk, WCS, raised a question  
15 about the EIS. Lisa London of our Office of General  
16 Counsel pointed out the Commission can direct the staff  
17 to do an EIS, and Environmental Impact Statement, if it  
18 chooses to do so.

19 I think we all understand at the NRC that the  
20 Final Environmental Impact Statement that was used to  
21 authorize the development of the current Part 61 is very  
22 much out of date. It does not represent operational  
23 reality.

24 If you go and look at these sites today and  
25 what they're doing, as compared to the actual

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1 operational realities, you'll see it's quite different.

2 It's also important to point out that when  
3 Part 61 was developed, the site that was modeled, that  
4 went into the regulations, was a humid eastern site, and  
5 that's because at the time the majority of then-existing  
6 or anticipated nuclear power plants were expected to in  
7 the eastern part of the United States.

8 So if you look at operational realities that  
9 went into that assumption for an arid eastern site and  
10 you compare it, for example, to, say, a site in Texas  
11 or a site in Utah or Washington, you're going to find  
12 that the environmental conditions are remarkably  
13 different.

14 So if you couple that with operational  
15 differences that exist today, one does get a fairly  
16 compelling indication that it would be nice to have a  
17 current Environmental Impact Statement, but time will  
18 tell; we shall see. And we're not doing that as part  
19 of this particular rulemaking.

20 The defense-in-depth, Dave discussed that in  
21 his remarks quite a bit. Defense-in-depth -- the  
22 Commission in its direction to the staff, said that  
23 defense-in-depth plus performance assessment equals  
24 the safety case.

25 The concept of the safety case is a well known

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1 and utilized and understood concept, particularly  
2 within the International Atomic Energy Agency and  
3 members states to the IAEA. And so the Commission is  
4 elevating the role of the safety case.

5 We've always been doing a safety case.  
6 Operators have always been doing a safety case. The  
7 agreement states have reviewed safety cases, but it's  
8 being specifically called out and called that now by the  
9 Commission, and it's elevating the importance of the  
10 performance assessment and defense-in-depth.

11 This regulation is about protecting public  
12 health and safety. Part 61 has always been about  
13 protecting public health and safety. The things we're  
14 going today are primarily driven by, as I said in my  
15 opening remarks, making sure that the operating sites  
16 or any future sites would be fully assessing unanalyzed  
17 waste streams.

18 At the time Part 61 was created, no one  
19 anticipated the disposal of large quantities of  
20 depleted uranium at that time. No one anticipated the  
21 large volumes of DOE waste that's been disposed of at  
22 that time.

23 So it is important and appropriate that we  
24 update our regulations to ensure that we appropriately  
25 address and assess for any unanalyzed waste streams.

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1           The panel approach was raised as a  
2 recommendation. We did use the panel approach during  
3 the first meeting in Washington. I certainly would  
4 agree, personally, that the panel approach has a lot of  
5 merit.

6           We have had some discussions about that, and  
7 we may do that. We'll take that under consideration.  
8 The value of a panel discussion is that when you bring  
9 together five or six experts, they raise issues or  
10 stimulate questions that the public is able to hear, and  
11 that in turn can stimulate more questions as well, when  
12 you have operational practitioners, you know, bouncing  
13 these issues around amongst themselves with the  
14 regulators.

15           So that is a very worthwhile recommendation,  
16 and we'll take it under consideration.

17           We've spent a lot of time around this notion  
18 of the need for another rulemaking, and I think it's  
19 important to be very clear.

20           And, Steve, can you go pull up my backup  
21 slide, slide number 13. I do think it's important to  
22 just kind of step through this so everybody goes away  
23 with a full understanding.

24           This is the Commission direction that came  
25 out of the staff paper, SECY-08-0147. It was in that

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1 paper that we undertook the analysis that I cited in my  
2 opening comments and made a recommendation to the  
3 Commission that we would specify a requirement for a  
4 site-specific analysis, technical parameters -- i.e.,  
5 new definitions -- and performance period to support  
6 such analysis and develop a guidance document.

7 That's what the Commission told us to do; that  
8 was our recommendation option number 2 in that paper.  
9 The Commission also told us to do the second paragraph,  
10 which was essentially option 4 in that paper, but they  
11 chose not to make that their primary option but a  
12 secondary assignment, in a future budget request. We  
13 took that to mean they wanted us to do it.

14 The staff should propose the necessary  
15 resources for a comprehensive revision to risk-inform  
16 the Part 61 waste classification framework. What means  
17 is you would go back and look at all of your waste  
18 concentration values in your tables today and bring to  
19 bear current ICRP methodology and the organ-weighting  
20 factors and so forth and determine what the  
21 concentration values should be.

22 They would be different. Some would go up;  
23 some would go down. They would be different.

24 With conforming changes to the regulations as  
25 needed, the waste classification tables had been

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1 embodies in certain regulations in states or the  
2 Low-Level Waste Policy Act, and so would there be any  
3 corresponding changes that would be needed?

4 Using updated assumptions and referencing  
5 the latest ICRP methodology, as I said, this effort  
6 should explicitly address the waste classification of  
7 depleted uranium. Okay?

8 That was the original assignment going back  
9 to 2009. If you go to my slide 17 -- no, that's actually  
10 the -- go to slide 18.

11 This is where the Commission said, After the  
12 limited rulemaking is complete -- that's this  
13 rulemaking -- the staff should provide a CA  
14 note -- that's Commissioner's Assistant note -- to the  
15 Commission on the second rulemaking effort for waste  
16 classification tables. I just read to you that  
17 assignment.

18 The CA note should outline the objectives and  
19 timeline for developing the regulatory basis of this  
20 second rulemaking, in consideration of the outcome of  
21 the near-term limited rulemaking that will precede it.  
22 In consideration of the outcome, outcome. You got to  
23 be final to have your outcome.

24 The CA note to the Commission should identify  
25 the specific comments that have been received on the

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1 need for a second rulemaking and clearly articulate the  
2 basis in accepting or dismissing those comments.

3 So the staff will share with the Commission,  
4 as I said earlier, what we're hearing during the  
5 meetings that we're conducting now, and then the staff  
6 has got to do certain other things to fully address that  
7 charge from the Commission, and then go back to and  
8 communicate with the Commission.

9 We haven't formulated what all those things  
10 are yet, but it will be things such as conferring as the  
11 Commission about what we're hearing during these  
12 meetings. We may need to develop an FRN that would  
13 specifically ask certain questions as a result of having  
14 a final rule.

15 And then Charles made a very interesting  
16 point and a most important point, I would suggest, is  
17 as the agreement states go about implementing the final  
18 rule, what do those implementation processes show you,  
19 because we think we should share that with the  
20 Commission as well.

21 So it may take some time to fully address that  
22 charge, and we have things to do as a staff, and  
23 certainly communicating with the agreement states as  
24 they go about implementation will be a critical part of  
25 that, so there will be more to follow on that point.

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1           So those were kind of the things that I  
2       would -- that struck me along the way. I want to thank  
3       everyone for all their comments, and we very much like  
4       getting comments like were raised tonight, and I think  
5       Diane out there listening in had some very interesting,  
6       pointed, and challenging comments. That's okay;  
7       that's part of the process. And we will take all those  
8       things into consideration.

9           And thank you again for being here and taking  
10      part in the process, and thank all those who listened  
11      in for your comments and taking part.

12           I think with that, Call Leader, we'll close  
13      the meeting. Thank you.

14           (Whereupon, at 9:00 p.m., the public meeting  
15      was concluded.)

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