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Guidance for Conducting Technical Analyses
for 10 CFR Part 61

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US NRC WEBINAR IN RE:
INTERAGENCY PERFORMANCE & RISK ASSESSMENT
COMMUNITY OF PRACTICE – OVERVIEW OF PROPOSED GUIDANCE
FOR CONDUCTING TECHNICAL ANALYSES
10 CFR PART 61

May 20, 2015

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above-mentioned proceeding as transcribed herein, is a record of the
discussions transcribed from provided material and contains inaudible
sections due to dropped sections of audio.

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UNITED STATES OF AMERICA

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NUCLEAR REGULATORY COMMISSION

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INTERAGENCY PERFORMANCE AND RISK ASSESSMENT
COMMUNITY OF PRACTICE -- OVERVIEW OF PROPOSED
GUIDANCE FOR CONDUCTING TECHNICAL ANALYSES FOR
10 CFR PART 61

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WEDNESDAY,
MAY 20, 2015

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The meeting was convened at Two White
Flint North, 11545 Rockville Pike, Rockville,
Maryland, at 1:30 p.m., Christopher Grossman,
Facilitator, presiding.

1 PRESENT:

2 CHRISTOPHER GROSSMAN, Office of Nuclear Material

3 Safety and Safeguards

4 DIANE D'ARRIGO

5 CHRISTOPHER McKENNY

6 PAUL GENWA

7 ROGER SEITZ

8 DAVID ESH

9 PERRY ROBINSON

10 CHRISTINA BROWN

11 BETSY FORINASH

12 SONNY GOLDSTON

13 LINDA SUTTORA

14 DAVID MICHLEWICZ

15 JOHN GREEVES

16 MARTIN CLAUBERG

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

(1:30 p.m.)

1
2
3 MR. GROSSMAN: So how can you find
4 additional information? We've mentioned the
5 www.regulations.gov. You can find both the rule and
6 the guidance there, as well as the Federal Register
7 notices for when they were published. And the docket
8 IDs I provided again. You can also find background
9 information and also information on the upcoming
10 public meetings, transcripts from the public meetings,
11 as well as briefing materials at our low-level waste
12 disposal web site for the rulemaking. And I've listed
13 that here in the hyperlink.

14 So at this point if there are any
15 questions on the rulemaking process for those on the
16 web, if you could please raise your hand so it'll show
17 me and then I can call upon you. And then after we go
18 through those, I'll open up the phone lines to see if
19 anybody on the phone lines would have any questions.

20 (Pause.)

21 MR. GROSSMAN: Okay. I don't see any from
22 the Internet folks. I'll un-mute --

23 (Pause.)

24 MR. GROSSMAN: Sorry, I realized I muted
25 myself. Thank you. For those on the phone line, I

1 will un-mute the phones. Try to. And if you have a
2 question, please state your name and then ask the
3 question.

4 MS. D'ARRIGO: This is Diane D'Arrigo. I
5 have a question about the comment period that ends on
6 May 26th. Could you say just a little bit more? Is
7 this an opportunity for suggesting requirements for
8 reporting, mechanisms for reporting, or all of that?
9 Or what is reported?

10 MR. GROSSMAN: I think if you -- I don't
11 know the answer to that, Diane, actually, but if you
12 look at Section 10 of the Federal Register notice,
13 that will give you an indication of what they're after
14 there.

15 MS. D'ARRIGO: So you don't know why
16 there's the month less time to comment?

17 MR. GROSSMAN: I don't know the answer to
18 that.

19 MR. McKENNY: This is Chris McKenny. This
20 is under the Paperwork Reduction Act and other methods
21 of information control, so it's not related directly
22 to the rule. And the earlier processing is for the
23 amount of information asked for if generic (inaudible)
24 process of rulemaking (inaudible) type of questions to
25 be asked (inaudible) information (inaudible), that

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1 sort of type of thing. Process safety --

2 MS. D'ARRIGO: Who is this speaking,
3 because I can't -- it's really hard to hear you, and
4 I'll call you back after because I can't hear what
5 you're saying.

6 MR. GROSSMAN: It's Christopher McKenny.

7 MR. MCKENNY: Yes, Christopher McKenny at
8 NRC. The A-26 (phonetic) is about the rulemaking
9 process and it's about the gathering of information
10 just generically, not about any requirements of Part
11 61 or any other specific thing. It's just more about
12 the process rule and the questions asked and the
13 (inaudible).

14 MS. D'ARRIGO: Thank you.

15 MR. GROSSMAN: Any other questions on the
16 rulemaking process?

17 MR. GENWA: This is Paul Genwa. I guess
18 I would ask a question whether the states, the
19 Agreement States that currently regulate low-level
20 waste facilities have already submitted comments or
21 have had informal consultations with you.

22 MR. GROSSMAN: We have (inaudible) with
23 the Agreement States in the past as we developed the
24 rule. There have been a number of periods where we've
25 gone out to the Agreement States for their comments on

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1 proposed regulation before issuing it to the public.
2 And we do expect to receive comments from them as part
3 of this process.

4 PARTICIPANT: I would note that a whole
5 lot of background noise came on line. Does somebody
6 got their -- not have their phone on mute?

7 MS. D'ARRIGO: Can I also ask if the
8 slides have disappeared off the screen for the web
9 people, or is that just mine?

10 MR. GROSSMAN: Still sharing them, Diane.
11 Are you not able to see them?

12 MS. D'ARRIGO: No, I guess I'll close out
13 and call back in. Thank you.

14 MR. GROSSMAN: Try that. Okay. So one
15 little adjustment here. I will ask when we go to the
16 question and answer period that if you do not plan to
17 ask a question, if you would please mute your own
18 phones so that we minimize the background noise. I
19 would appreciate that. Thank you.

20 Okay. If there are no further questions,
21 we'll go ahead onto the next section. I'm going to
22 put everybody back on mute all, and we'll move
23 forward.

24 So the next section we'll cover a high-
25 level view of the changes to the rule itself. And

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1 there's more detail that is available at our rule
2 public meetings, but I wanted to give a little bit of
3 context so that as we went through guidance there was
4 some understanding of why we're doing what we're doing
5 in the guidance.

6 So we are on slide 15 of the package
7 (inaudible) rule. And the four elements here are
8 essentially that we're proposing to amend the
9 regulations to require and revised site-specific
10 technical analyses to demonstrate that the performance
11 objectives are met, also to permit the development of
12 site-specific criteria for waste acceptance and to
13 facilitate implementation and better align the
14 requirements with current health and safety standards.
15 And then also to ensure that licensing decisions are
16 based on explicitly defense-in-depth protections. As
17 we talked about, this will affect low-level waste
18 disposal licensees or applicants that are regulated by
19 the NRC or the Agreement States.

20 So this on slide 16 (inaudible) lot here.
21 It's a busy slide. I'll try and take a little time to
22 explain. This is kind of a summary of the proposed
23 modifications to the rule. And I find it helpful and
24 I hope that you do, too. Essentially, the performance
25 objectives will have three tiers to -- three time

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1 periods: a compliance period, a protective assurance
2 period and then a performance period.

3 And, let me see if I can blow this up
4 since I'm not in slide mode. Excuse me one second.

5 (Pause.)

6 MR. GROSSMAN: I don't know if that helps
7 much, but the -- in this figure what we have are up
8 top you have assessment context and (inaudible)
9 developments. And then three blue vertical boxes are
10 the three primary analyses for long-term assessments:
11 the performance assessment, the intruder assessment
12 and the stability analysis. And then here we also
13 have defense-in-depth considerations.

14 The overlays, the white overlays that are
15 horizontal deal with the three time periods. So the
16 top time period is the compliance period, the middle
17 time period would be the protective assurance period,
18 and the third time period would be the performance
19 period.

20 And then written in the intersection of
21 the vertical and horizontal stripes I have kind of the
22 performance objectives in summary. So there's a dose
23 limit for the performance assessment during the
24 compliance period of 25 millirem, and that would be
25 the dose limit to a member of the general public. For

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1 the inadvertent intruder (inaudible) limit would be
2 500 millirem per year during the compliance period.
3 And then for the protective assurance period the
4 performance objectives state that the releases should
5 be minimized or the exposure should be minimized in
6 the case of the intruder assessment.

7 And I want to point to the bottom here,
8 this little footnote. There was too much to put in
9 the box, so -- but there's a goal of 500 millirem per
10 year or a level reasonable achievable based on
11 technological and economic considerations.

12 And then for the performance period the
13 performance objectives change to minimize to the --
14 minimize releases or minimize exposures to the extent
15 reasonably achievable during those periods.

16 The compliance period lasts until 1,000
17 years after closure of the facility. The protective
18 assurance period then spans from the end of the
19 compliance period to 10,000 years. And the
20 performance period then would be for 10,000 years plus
21 and beyond depending on the waste characteristics and
22 the residual risk.

23 The modifications to the rule also specify
24 the requirements of the technical analyses, and so
25 you'll see changes to Section 61.13 on -- for the

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1 performance assessment, as well as the intruder
2 assessment. And then it also includes a requirement
3 for an explicit demonstration of the defense-in-depth.
4 And the way we've depicted this in the diagram -- the
5 idea is that the defense-in-depth analysis (inaudible)
6 results of the other three analyses. Actually also
7 for -- during operations, it would draw upon that to
8 demonstrate that the facility incorporates defense-in-
9 depth protections.

10 And then finally, the regulation includes
11 requirements for waste acceptance and how waste
12 acceptance criteria and a waste acceptance program are
13 established.

14 So with that I'll open it back up for
15 folks on the WebEx technology. If you have questions,
16 please raise your hand and I'll call upon you. I have
17 one question in the chat. Someone has asked for the
18 ML number for the slide, so I will provide those. The
19 ML number is M -- this is the -- I'm sorry, the ADAMS
20 accession number. That's our document management
21 system. And the accession number is ML 15135A292.
22 And I'll post that again here, the web link, so you
23 can click to it directly.

24 So if anyone on the WebEx has a question
25 at this point about the proposed changes, please raise

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1 your hand and I'll call upon you.

2 Okay. Roger Seitz, I see you there. Let
3 me un-mute you.

4 Okay. Go ahead, Roger.

5 MR. SEITZ: Thank you, Chris. I think
6 these were a couple topics that came up on the panel
7 discussion that you had in the previous meeting, and
8 I was just curious of there's been more thought about
9 them. One was the concept of minimization, or using
10 the term "minimized." And I was wondering, maybe
11 asking a different way, why was that word chosen?

12 And just another thing. When you look at
13 the chart, it says "minimized during the protective
14 assessment period," and then it says "minimized to
15 extent reasonably achievable." I'm being picky, but
16 that can be interpreted that you're not meaning
17 minimized to the extent reasonable achievable at the
18 protected assurance period.

19 And the second -- I'll follow with the
20 second. The second question was the need to extend
21 the stability analysis beyond the compliance period.
22 And one concept that was discussed was the idea of
23 letting the calculations, letting your assumptions
24 address stability questions for the time beyond that
25 without imposing a specific stability requirement.

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1 MR. GROSSMAN: Yes, okay. Thank you,
2 Roger. I'll just give you a little understanding
3 about the language, and if Dave Esh or Chris McKenny
4 want to chime in at the end of this, just let me know.
5 The language was given -- it was given this Commission
6 direction as part of the rulemaking package, and the
7 idea was to (inaudible) the protective assurance
8 period, something akin to the ALARA process.
9 Obviously for ALARA it's usually comparison against a
10 dose limit, and in this case there is no dose limit.

11 So this is a little bit of a new concept,
12 or a new approach that the Commission has proposed.
13 And so we definitely want to get comments on both the
14 performance objective and the time period, as well as
15 the guidance. And so, I think that would be something
16 that we would appreciate receiving concerns about,
17 about the performance objective for the protective
18 assurance period, as well as performance period.

19 MR. SEITZ: Can I -- I'll just -- in
20 context of minimize I don't believe that term is used
21 in the definition of ALARA.

22 MR. GROSSMAN: Right, ALARA and
23 optimization process, you're correct.

24 MR. SEITZ: Just something to consider.

25 MR. GROSSMAN: Yes. Thank you. I

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1 appreciate that. I hear what you're saying, and
2 comments that we receive on that we'll definitely
3 respond to in or formal responses.

4 Okay. Let me see if there's anybody else
5 on the WebEx. I've got a few chat questions.

6 Okay. I don't see anybody else on the
7 WebEx. I have -- I'll un-mute all. If you are not
8 asking a question, please mute your phone at this
9 moment so we don't get a lot of feedback.

10 (Receiving audio feedback)

11 PARTICIPANT: That worked well.

12 MR. GROSSMAN: That didn't work at all.
13 I'll put everybody back on mute and I'll ask -- I have
14 a chat here from Diane. "Is the compliance period,
15 which was 100 years, being extended to 1,000 years?"

16 Currently Part 61 actually doesn't specify
17 a compliance period for the analyses. And so, that's
18 one of the things that this rulemaking is attempting
19 to address is that we'll specify a time frame. And
20 so, yes, 1,000 years would be the compliance period on
21 the proposed regulation.

22 I have a question from Perry Robinson.
23 "What is the basis of the following language: a level
24 reasonably achievable based on technological and
25 economic considerations?"

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1 In Commission direction as we headed
2 toward finalized proposed rule this was language that
3 the Commission directed the staff to include as part
4 of the proposed language. And so, that's the reason
5 for including that. And so, any comments that you
6 receive on the adequacy of that language or proposed
7 changes to that language we would certainly greatly
8 appreciate it as we consider comments from the public.

9 Okay. Diane, I'm sorry. I see I have
10 another. She said, "Put another way, what happened to
11 the institutional control period?"

12 The institutional control period has not
13 changed, so institutional controls still need to be --
14 are assumed to be maintained for 100 years after
15 closure of the site. They can be relied on no longer
16 than that. So that Part 61.59, is the section number,
17 has not changed. So, no, the institutional control
18 period is not being extended to 1,000 years. That is
19 just the time frame over which these analyses need to
20 be conducted to demonstrate that the performance
21 objectives are met.

22 And I have a question from Christina Brown
23 about table A. I'm going to table that question for
24 now until we get to the performance period discussion.
25 The question is she's interested in why table

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1 (inaudible). Instead of making the language changes
2 in table A -- in table 1, which is currently in Part
3 61 instead, you would have uranium concentration
4 considered in the classification system. Well,
5 actually, now that I read this, let me address this
6 now. Then you could tie all time periods for analyses
7 specifically to a waste class.

8 The Commission chose to specify
9 requirements for site-specific analyses at this time.
10 And one of the things in terms of the parameters
11 needed to address that the staff's proposal to the
12 Commission was a threshold for when the third time
13 period would need to be conducted. And so we came --
14 we developed table A, which is based -- is tied very
15 closely to table 1. In table 1 currently are the
16 classification limits for A, B and C in -- I believe
17 it's for long-lived waste in Section 61.55 of the
18 regulations.

19 And so, we do have as part of the
20 Commission direction -- we have a target to come back
21 to the Commission about whether the waste
22 classification system would need to be updated in the
23 future after the completion of this rulemaking. So
24 that's something the Commission will be considering in
25 the future, but for this rulemaking they wanted to

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1 limit it to conducting the analyses, requiring the
2 analyses to be conducted.

3 I have a question from Betsy Forinash.
4 She says, "I understand the intention is to allow use
5 of the tables for establishing a waste acceptance
6 criteria. Which if the analyses must be conducted
7 when the tables are used and which apply to the
8 development of site-specific waste acceptance criteria
9 for particular or unusual waste streams?"

10 So the analyses to be conducted are
11 specified in 61.13, Section 61.13. They're to be
12 conducted for all, whether you use the waste
13 classification tables or develop site-specific waste
14 acceptance criteria. And in 61.58 the requirement --
15 or it allows the flexibility to use existing the waste
16 classification system to develop your criteria or the
17 results of the analyses. That being said, you still
18 have to demonstrate that performance objectives are
19 met regardless of (inaudible) so the analyses still
20 need to be conducted.

21 Diane, let me find you. I'm not sure I
22 understand your question here. I don't know if you
23 came back on line or if you're just a phone
24 participant. I'm going to un-mute all so I can ask
25 Diane, because I can't find her (inaudible)

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1 specifically.

2 (Audio feedback.)

3 MS. D'ARRIGO: Hi.

4 MR. GROSSMAN: Please mute your phone if
5 you (inaudible).

6 MS. D'ARRIGO: I was trying to type it in.
7 Sorry. How do you determine who's a member of the
8 public and who is an inadvertent intruder?

9 MR. GROSSMAN: That was grating. I
10 apologize.

11 Okay. So, a member of the public would be
12 someone who would be exposed to releases from the
13 facility, and the regulation states that there's a
14 disposal site which includes the disposal units as
15 well as a buffer zone around them. And so, the member
16 of the public would be the person who would be exposed
17 releases from -- basically from that buffer zone. So
18 releases that go beyond the buffer zone.

19 The intruder, on the other hand, is
20 someone who may come site and occupy the site for some
21 period of time. It could be very limited. It could
22 be more extended. But the idea is that those are our
23 controls in place. Those controls may fail and
24 someone may come on site and either be exposed to
25 radiation from the waste or actually contact the waste

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1 through their activities.

2 Okay. And I've got a comment that some of
3 that feedback we may have gotten was because
4 participants may possibly be using both their phone
5 and their computer microphones. So if you're using
6 the computer, make sure that your PC mic isn't
7 broadcasting. Thank you for that.

8 Okay. I don't see any other questions.
9 Let me do one last scan for hands up. And we'll move
10 on to the guidance.

11 Roger, your hand is still up. You have
12 another question?

13 MR. SEITZ: No, I was trying to get it go
14 down.

15 MR. GROSSMAN: Okay. Thank you.

16 MR. SEITZ: Sorry.

17 MR. GROSSMAN: Sonny Goldston, I'll un-
18 mute you. I see your hand is up.

19 MR. GOLDSTON: Thank you. I, in going
20 through the document, didn't see a requirement for
21 point of assessment. In context, DOE takes a look in
22 -- for groundwater assessment or other assessments, so
23 water meters from around the buffer zone. I know in
24 the NRC requirements you talk about a buffer zone
25 around your site, but the point of assessment isn't --

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1 I couldn't find anywhere that it was discussed. And
2 I -- I can't stay on the line for the whole
3 presentation; I apologize for that, so I thought I'd
4 better ask that question now.

5 MR. GROSSMAN: Sonny, I think -- I don't
6 remember every single word of the regulation, but I
7 believe it's in the definition section where we talk
8 about that. And I don't have the regulation in front
9 of me, unfortunately --

10 MR. GOLDSTON: Okay.

11 MR. GROSSMAN: -- to be able to answer
12 that.

13 MR. GOLDSTON: That's a comment to assess,
14 because it's been a point of discussion in all the PAs
15 that I've been involved with and I could not find it.
16 I looked through the definitions and I couldn't find
17 it. I saw a very good discussion of what a definition
18 of the facility is and the definition of a buffer zone
19 and how all that works together, which I thought was
20 excellent, but I couldn't find discussion of how large
21 or small the buffer zone could be, for example.

22 MR. GROSSMAN: Okay. Thank you for that.

23 Sonny -- okay. I see you lowered your
24 hand. Thank you.

25 Okay. So let's move forward into the

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1 guidance. So the guidance is also in our NUREG series
2 of publications and it has been assigned the number
3 2175. Just another way to find it.

4 The purpose of the guidance is to provide
5 acceptable approaches for demonstrating that the
6 regulations have been met. One caveat is that this is
7 guidance and I think to think "should" versus "shall"
8 situations, so the rule tends to be shall, things that
9 need to be done, and whereas guidance tends should,
10 things that can be done and would be acceptable if
11 performed that way. But they're not the only approach
12 and licensees may propose other approaches with the
13 approval of the regulator.

14 So the guidance provides information on
15 how to conduct performance assessment, the inadvertent
16 intruder assessment, the site stability analysis, the
17 analyses for the protective assurance period and the
18 performance period, as well as the defense-in-depth
19 analyses. And it also provides guidance on developing
20 a waste acceptance program.

21 Slide 20 of the package. This is kind of
22 the table of contents of the guidance document. And
23 we'll walk through most of these chapters through
24 about Chapter 10 minus Chapter 1, and then I'll just
25 do a brief highlight of the appendices to give you a

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1 flavor of what's in those. My goal is to summarize
2 kind of the content of those chapters to kind of give
3 you a cheat sheet as you go through the guidance and
4 prepare to make comments on the guidance.

5 And we'll offer a chance after each of
6 these sections to ask questions, to let you ask
7 questions or provide comment. And we ask that if you
8 do comment during the meeting, that you also submit in
9 writing to ensure staff fully considers those comments
10 as part of the rulemaking.

11 The guidance also -- I want to highlight
12 some additional content that kind of flows throughout
13 the guidance, through all the chapters. We tried to
14 emphasize risk-informed approaches as well as
15 flexibility, emphasizing that the ways we've proposed
16 are not the only ways to demonstrate that the
17 regulations have been met and that in general that the
18 level of effort is corresponding to the risk involved
19 in the facility. So higher risk would generally lead
20 to a higher level of effort to demonstrate that the
21 regulations have been met.

22 We also tried to point to other NRC
23 guidance that's out there. So this guidance is
24 intended to supplement existing NRC low-level waste
25 disposal guidance, and where possible we tried to

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1 point to those other pieces of guidance so that it's
2 a little more seamless than it may have been in the
3 past.

4 We've also tried to provide a number of
5 examples to elucidate the approaches that we're
6 recommending, and then also tables and figures to help
7 clarify the guidance for the user. So hopefully it
8 will be a little more clear.

9 And finally, the appendices contain lots
10 of useful information like hazard maps. We have
11 extensive lists of features, events and processes for
12 use during scenario development. And so, I'll
13 highlight some of those at the end of the meeting.

14 So we're on to slide 22. How to find the
15 guidance. Again, you can find it on regulations.gov
16 by searching on the NRC docket ID, NRC 2015-0003. You
17 can also find it at NRC's document management system
18 known as ADAMS. You can click on that link and then
19 search under the accession number that I listed here.
20 And that's ML 14357A072. And then also at the low-
21 level waste disposal web page that I mentioned
22 earlier. And I provided the link again for your
23 convenience.

24 On slide 23, as I mentioned, the guidance
25 supplements existing guidance. And so, part of the

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1 guidance provides a crosswalk to other NRC guidance
2 documents that provide background information or
3 alternative approaches in some cases or complementary
4 approaches. And we have listed some of those pieces
5 of NRC guidance, some of the more significant ones
6 here that have influenced the technical analysis
7 guidance in 2175.

8 Okay. So we'll jump right into the first
9 chapter. This is actually Chapter 2 of the document,
10 and this chapter covers considerations for general
11 technical analyses. So this would deal with issues
12 that are generally applicable to all the Part 61
13 analyses that need to be conducted.

14 We'll move on to slide 25. It lays out
15 that a general process for conducting the analyses --
16 let me see if I can blow this up a little bit more.
17 This is kind of small. That's too big.

18 And so, it provides a flow diagram of kind
19 of a general approach to conducting technical analyses
20 and starting with what's the context for the
21 assessment, the time frames that are involved and the
22 site characteristics. And then also describing how to
23 describe the system. 61.12 refers to the types of
24 information that need to be included as part of the
25 license application. And we talk about how those

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1 relate to the analyses, as well as dealing with
2 changes in the system over time. So the temporal
3 changes.

4 We spend an extensive amount of time on
5 scenario development in the guidance. We preview both
6 top-down and bottom-up approaches. And for those of
7 you that may not be familiar with those kind of ad hoc
8 terms, a bottom-up approach is where one might
9 systematically start with a list of features, events
10 or processes that may occur at the site and then begin
11 to screen those identified features, events and
12 processes and develop scenarios from them that may
13 affect the performance of the system or the disposal
14 facility. Whereas a top-down approach might start
15 with a disposal concept or design and then describe
16 the safety functions of those and demonstrate how the
17 safety functions ensure safety. So just two different
18 approaches to developing scenarios.

19 And then it proceeds to describing
20 conceptual model development. And we also talk about
21 alternative conceptual models or developing a
22 conceptual model of how the site behaves. And then
23 also there may be alternative conceptual models for
24 that in terms of other reasonably foreseeable
25 activities that are consistent with the data and how

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1 to consider those, and then turning that conceptual
2 model into a numerical model and performing the
3 analyses.

4 And so, this section talks about selection
5 of numerical models, quality assurance for those
6 models, as well as converting a conceptual model into
7 a numerical model and then integrating the models
8 together, because you may have disparate models
9 covering different parts of the disposal facility or
10 the disposal site. For instance, you might have a
11 model on the disposal units and the release of
12 radionuclides from those units. And then you may have
13 a separate model that handles the transport of
14 radionuclides away from the disposal units once
15 they're released. And then also about how to use the
16 results of the analyses.

17 The other thing that's not included in
18 this flow diagram is that the chapter focuses on
19 acceptable dosimetry methodologies, and this is part
20 of the Commission's direction to allow licensees the
21 flexibility to use more updated dosimetry. And the
22 guidance talks about how to do that and it emphasizes
23 that if more modern dosimetry is used, then the
24 licensee needs to ensure that corresponding dose
25 weighting and dose conversion factors are used so

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1 you're not using a dose conversion factor and a
2 weighting factor from different ICRP systems, for
3 instance.

4 Okay. The chapter also includes issues
5 for reviewers to consider in reviewing a licensee's
6 proposed approach or conducting the analyses. It
7 emphasizes a graded approach. And what I mean by this
8 is essentially the same as risk-informed so that a
9 higher-risk facility would generally require more
10 effort, more support for its models than a lower-risk
11 facility.

12 It also discusses reasonable assurance,
13 which is the NRC standard. Reasonable assurance is
14 not complete certainty that the facility perform as
15 modeled, but that it will reasonably provide
16 reasonable assurance that the performance objectives
17 will be met.

18 It talks a little bit about data adequacy.
19 And what we mean here is are the data sufficient for
20 the modeling and their intended use in that model?
21 Are they used appropriately? And then it also talks
22 about uncertainty and model support. It describes
23 characterizing the uncertainty, how to screen the
24 uncertainty or bound the uncertainty, and then also
25 how to document the impact of the uncertainty on the

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1 results.

2 And then finally the model support
3 component. Because of the long time frames involved
4 we can't traditionally validate these in the
5 scientific sense of the word these models over the
6 time frames. And so, model support is used to provide
7 confidence that the models will adequately represent
8 the real system.

9 So, slide 27. So here I'll take a pause
10 and let folks ask questions or provide comments.
11 We'll give you a few bullets here of what the staff is
12 interested in seeking feedback on on this section of
13 the guidance. And you'll see this repeat a lot for
14 each of the chapters. Namely, is the guidance
15 provided adequate to develop the technical analyses to
16 meet the 61.13 requirements? Is the guidance clear,
17 particularly on the assessment process? And then I
18 emphasize that we have a lot of information on
19 scenario development. And so, there's quite a bit in
20 the chapter on that. And so, any comments we receive
21 on scenario development would be much appreciated.

22 So with that, I'll pause here and give
23 folks a chance on the WebEx to raise their hand if
24 they have a question. And I'll un-mute and then we'll
25 go to the call-in users after that.

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1 Okay. Linda Suttora, I'll un-mute you.
2 Go ahead, Linda.

3 MS. SUTTORA: Hi. Thanks. So, Linda
4 Suttora, DOE. So, I was just curious, and I think I
5 mentioned this at a previous public meeting, have you
6 thought more about when a disposal facility develops
7 a WAC using their performance assessment and follows
8 the process? What would happen if waste -- somebody
9 wanted to dispose of waste that was outside their WAC,
10 but if they did an analysis it wouldn't impact meeting
11 the performance objectives? I haven't made it all the
12 way through the whole guidance and everything. I was
13 just curious if you guys had thought about that.

14 MR. GROSSMAN: I understand what you're
15 saying. I can't recall if we deal with that issue
16 specifically, but I think generally the intent would
17 be to either update the WAC -- I mean, you indicate
18 that in this case they would have conducted an
19 analysis to show that it didn't affect the performance
20 objectives. So, I think that would support then the
21 update to the WAC that this waste stream that was
22 outside the original WAC would be acceptable or not.

23 MS. SUTTORA: But if you have the WAC as
24 part of the license, that would require a major
25 change. Is there an ability to do that without having

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1 the whole license amendment process?

2 MR. GROSSMAN: The -- I think in general
3 the way the rule is written it would probably require
4 the license amendment except for that the rule does
5 allow a regulator to issue an exemption, but there
6 would still be a process associated with that
7 exemption request.

8 MS. SUTTORA: Okay. Yes, and I'm just
9 giving you these comments based on our experience at
10 DOE just in case it's helpful, but some of our
11 facilities do probably 20 different modifications to
12 their WAC a year based on the kinds of -- it's really
13 difficult at a disposal facility to anticipate every
14 possible likely waste stream that could come into
15 them, but where -- and they might not be any different
16 -- it might not be very difficult to dispose of them
17 or impact anything. It's just we have developed a
18 different alternative process that allows for these
19 amendments. And they still have to go through
20 Department of Energy and get approved. But we just
21 have that system that has worked out well for us. So
22 it's just something to think about for the future.

23 MR. GROSSMAN: I appreciate that, Linda.
24 And again, please submit any suggestions you may have
25 as part of your comment package.

1 MS. SUTTORA: Absolutely. Thank you.

2 MR. GROSSMAN: Yes. Okay. I don't see
3 any other hands raised. I'm going to attempt to un-
4 mute. Again, if you're calling in, please put your
5 phone on mute unless you wish to ask a question. And
6 if you're listening on a phone and through the
7 computer, please mute your mic as well. Thank you.
8 Let's try this.

9 MR. MICHLEWICZ: David Michlewicz, DOE.

10 MR. GROSSMAN: I'm sorry.

11 MR. MICHLEWICZ: Can you hear me?

12 MR. GROSSMAN: Could you repeat again?

13 MR. MICHLEWICZ: Dave Michlewicz --

14 MR. GROSSMAN: Okay, Dave. What's your
15 question?

16 MR. MICHLEWICZ: -- and I have a question
17 (inaudible) regulatory language that you mentioned
18 before. In its review of the license application for
19 Yucca Mountain the staff used the phrase, if I
20 remember correctly, "reasonable expectation," rather
21 than "reasonable assurance." And I thought that that
22 meant a lower level of certainty. Is that it, or what
23 is the reason for the difference? Is it just a choice
24 of words or, like I said, different levels of
25 certainty, or what?

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1 MR. GROSSMAN: I'll give you my
2 interpretation of that. The NRC has always relied on
3 the term "reasonable assurance." As you mentioned, in
4 the Yucca Mountain proceeding we did use reasonable
5 expectation, and part of that was under that Act, the
6 Nuclear Waste Policy Act, we were -- the Commission
7 was to adopt the EPA standard, and the EPA standard
8 used that term.

9 MR. MICHLEWICZ: Right.

10 MR. GROSSMAN: I don't believe the
11 Commission views them as any different in terms of
12 meaning.

13 MR. MICHLEWICZ: Okay. Thank you.

14 MR. GROSSMAN: Any other on the phone who
15 wish to ask a question?

16 Okay. Linda, I see your hand is still up.
17 Do you still have another question?

18 MS. SUTTORA: No, I'll put my hand down.

19 MR. GROSSMAN: Okay. Thank you, Linda.

20 Okay. I'm going to put everybody back on
21 mute now and we'll move on to the next section. And
22 thank you, all, for muting your phones. That was much
23 improved over the previous time. Thank you.

24 So the next section will deal with the
25 performance assessment, which is the technical

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1 analyses used to demonstrate that the performance
2 objective at 10 CFR 61.41, or the protection of the
3 general population is ensured.

4 So, we'll go on to slide 29. The
5 performance assessment is not a new topic. There was
6 always a requirement to conduct an analysis for
7 protection of the general population. It's more of a
8 renaming of the technical analyses and bringing more
9 specificity to the requirements. The proposed
10 modifications modernize the existing technical
11 analysis requirements, and the requirements then
12 specify more detail about the scope in terms of what
13 features, events and processes should be considered.

14 The requirements also deal with the
15 treatment of uncertainty and variability as well as
16 model support. And the idea here is to make the
17 requirements more explicit. Previously they were
18 somewhat implicit in the regulation. And with the
19 proposed changes then it would be more explicit.

20 There's also a requirement to update the
21 performance assessment at closure. And then we
22 modified the siting characteristics requirements to be
23 consistent with the disposal of long-lived waste. And
24 so, some of those siting characteristic requirements
25 are exclusionary in the sense that --

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1 (Technical difficulties.)

2 MR. GROSSMAN: What happened? One second
3 here. For some reason it stopped. Okay. Can
4 everybody still see?

5 (No audible response.)

6 MR. GROSSMAN: Is everyone still able to
7 see the PowerPoint?

8 (Simultaneous speaking.)

9 PARTICIPANT: It looks like we got closed
10 from WebEx.

11 PARTICIPANT: Yes, we're down in Utah.

12 MR. GROSSMAN: Oh, no.

13 PARTICIPANT: We're looking at Perry
14 Robinson's screen right now, it looks like.

15 MR. GROSSMAN: Yes, I got a thank you for
16 using WebEx, and I don't know how it shut down.

17 PARTICIPANT: Maybe we could try again?

18 PARTICIPANT: Do you -- Dave, do you want
19 me to load it from my end?

20 PARTICIPANT: It says thank you for using
21 WebEx.

22 PARTICIPANT: (Inaudible) I don't know.
23 But you know --

24 PARTICIPANT: Chris, is it possible that
25 Perry Robinson grabbed the presenter, because I see a

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1 ball next to his name that says grab it if you want to
2 be the presenter. Can you grab it back?

3 MR. GROSSMAN: Yes, let me try that. Let
4 me roll to -- oh, yes, I must have inadvertently done
5 that. I'm sorry. Okay.

6 PARTICIPANT: But the other thing we can
7 do, we have copy of the presentation.

8 MR. GROSSMAN: Can everybody see it now?

9 PARTICIPANT: No.

10 MR. GROSSMAN: Still no?

11 PARTICIPANT: It says meeting --

12 PARTICIPANT: Well, we're back to a WebEx
13 screen --

14 MR. GROSSMAN: Yes.

15 PARTICIPANT: -- but I don't see a slide.

16 MR. GROSSMAN: Share application.

17 PARTICIPANT: There we go.

18 PARTICIPANT: Now, it's on Erick Reynolds.

19 MR. GROSSMAN: Now, it's on Erick
20 Reynolds. Why is it -- I apologize. Sharing will end
21 if you become the presenter. Does that help?

22 PARTICIPANT: Yes, it came back.

23 PARTICIPANT: There it is.

24 MR. GROSSMAN: Okay. I don't know what I
25 did there. I have a problem with technology

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1 sometimes. Okay. Start the recording back up. Still
2 recording. Okay. My apologies for that.

3 Okay. So we are on slide 30. The
4 guidance lays out a general approach for performance
5 assessment, and many of these are described in Chapter
6 2 as well in more detail. But it's an iterative
7 process and so it's intended to be a learning process
8 as new information about the site is collected. The
9 models may be updated, the scenario analysis may be
10 reevaluated and so forth. And what I've provided here
11 on the left is just an example from the guidance on
12 that PA process. And you can find that flow chart in
13 figure 3-1 of the guidance.

14 NUREG-2175 supplements an existing
15 guidance document known as NUREG-1573, which is -- was
16 our previous guidance on conducting performance
17 assessment for low-level waste disposal. So in many
18 cases that guidance is still relative and we tried to
19 indicate where the two areas are complementary or if
20 the new guidance has superseded the previous guidance.

21 The new guidance does have more of an
22 emphasis on long-lived radionuclides because of how
23 this rulemaking came about with the disposal of
24 depleted uranium, and so we've emphasized that in the
25 guidance, how to handle long-lived radionuclides.

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1 And specifically the performance
2 assessment chapter focuses a lot on modeling of the
3 source term, how to conceptualize the source term and
4 then implement a numeric model, as well as transport
5 of the radionuclides from the disposal facility and
6 modeling of the biosphere.

7 Slide 31. So that was kind of a high-
8 level review of the performance assessment section.
9 Because it's not necessarily a new topic but more of
10 an update to existing analyses the guidance is pretty
11 consistent with what's out there currently. And so,
12 we're seeking feedback on the adequacy of the guidance
13 to demonstrate the requirements for the performance
14 assessment, and also the clarity. And then if there
15 are parts of the guidance that belong in regulation or
16 maybe parts of the regulation that are better served
17 in guidance, those sorts of comments would be helpful
18 to the staff as well as it considers all the comments
19 for the Commission.

20 So with that, I'll pause here and give
21 folks a chance if they want to ask questions again
22 before we proceed into the intruder assessment.

23 So folks on the WebEx, if you'd raise your
24 hand and I'll call on you.

25 Okay. Roger Seitz?

1 MR. SEITZ: Yes, this is Roger. Just a
2 quick comment on your flowchart. I think it would be
3 good to consider whether you are demonstrating
4 defense-in-depth or maybe something more -- I guess
5 something that would not be interpreted so strictly
6 (inaudible) your document (inaudible) what's being
7 done for (inaudible) defense-in-depth, something like
8 that.

9 MR. GROSSMAN: Okay.

10 MR. SEITZ: That's just a suggestion to
11 consider.

12 MR. GROSSMAN: So, as I understood the
13 comment -- okay. Thank you, Roger. As I understood
14 that -- you broke up a little bit. Let me repeat it,
15 and if I mischaracterize it, please correct me.

16 You were saying in the flowchart on slide
17 30 under step No. 7 it says demonstrate defense-in-
18 depth. Your comment was is that we should clarify
19 whether it's a demonstration or a discussion of the
20 defense-in-depth. Is that a fair brief summary of
21 what you said?

22 MR. SEITZ: No, I think -- and (inaudible)
23 -- and maybe that's not -- that may not be your
24 intent, but I was just thinking that -- at least from
25 my perspective that's more of what it is. It's more

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1 of a demonstration, documentation, discussion.

2 MR. GROSSMAN: Yes, I appreciate the
3 comment. Just to give you a little background, I
4 guess, the reason we put that there was more to show
5 that as you gain results from a performance
6 assessment, those results would inform your
7 demonstration of defense-in-depth. But certainly if
8 you think that the words could be clarified or more
9 discussion, please point that out to us in the
10 comments. Thank you.

11 Okay. I see John Greeves his hand up, but
12 I don't see how I can un-mute him, so I'm going to un-
13 mute everybody and hope that he's on the phone that
14 way. Okay, John. What was your question?

15 MR. GREEVES: Yes, can you hear me?

16 MR. GROSSMAN: Yes.

17 MR. GREEVES: Okay. The question is more
18 of a comment that your questions were about guidance
19 versus regulations. And my view is that the proposed
20 regulation has a lot of how-to, which I call guidance,
21 in it. How did you differentiate between what should
22 go in the regulation and what should go in the
23 guidance, the 61.13 was a few paragraphs. Now it's
24 like 16. How did you decide how much of that needed
25 to be on the regulation versus guidance?

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1 MR. GROSSMAN: Okay. Thank you, John, for
2 the question. I think in general; I'll give you my
3 perspective on this, we felt that we put in regulation
4 the bare minimum to ensure relative uniform
5 consistency in terms of what the performance
6 assessment would involve. And so, we tried to be as
7 minimal as possible. Obviously some may not agree
8 that it's as minimal as it needs to be, or some may
9 think that it needs more than it has, and we
10 appreciate those comments. But that was kind of our
11 intention, is what did we feel was needed on the
12 regulation to kind of ensure like a consistent
13 standard in terms of what a performance assessment for
14 Part 61 would entail?

15 MS. D'ARRIGO: I have a question.

16 MR. GROSSMAN: Okay. State your name and
17 then ask your question.

18 MS. D'ARRIGO: It's Diane D'Arrigo. I
19 wanted to know using the performance assessment do you
20 have some percentage likelihood that the estimated
21 dose will be achieved or not exceeded?

22 MR. GROSSMAN: Okay. So in the guidance
23 we talk about that. And licensees are free to use
24 deterministic or probabilistic models. In general,
25 with the probabilistic NRC's approach to that in

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1 guidance has generally been the peak of the mean, so
2 if the peak of the mean is below the dose standard,
3 then the dose standard is met.

4 MS. D'ARRIGO: And does it matter that the
5 performance period doesn't go to the peak dose? I
6 know you're not using that same meaning of the word
7 "peak," but the performance assessment doesn't have to
8 go all -- or does it go all the way out to the peak
9 dose?

10 MR. GROSSMAN: So, for the compliance
11 period you would look at the peak of the mean from
12 your realizations that you conduct during the 1,000
13 year period. For the other periods then you get into
14 the different performance objectives. And licensees
15 -- in general the guidance, particularly for the
16 protective assurance, it's recommendation is to just
17 continue your analysis out, but a licensee wouldn't
18 necessarily have to conduct a performance assessment
19 out there. They could conduct (inaudible) analyses to
20 show that they're minimizing releases with the goal of
21 hitting the 500 millirem.

22 MS. D'ARRIGO: At what point is
23 appropriate to ask where 500 millirems was decided on?

24 MR. GROSSMAN: No, you can ask that now.
25 You're talking about for the protective assurance

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1 period?

2 MS. D'ARRIGO: Well, I guess it's after
3 the 100 years. That's what I was trying to get at
4 before. I think the institutional control period, one
5 assumes 20 millirems to a member of the public and
6 then --

7 MR. GROSSMAN: Okay. So --

8 (Simultaneous speaking.)

9 MS. D'ARRIGO: -- control period. Then
10 there could be inadvertent intruders, and that's who
11 gets the 500.

12 MR. GROSSMAN: Okay. So let me clarify
13 that.

14 MS. D'ARRIGO: Okay.

15 MR. GROSSMAN: The institutional control
16 period is a period of time where during the analyses
17 in particular that the applicant or licensee can rely
18 on controls to exclude the intruder from the site.
19 And so, generally that can extend beyond 100 years.
20 And so, after 100 years then the intruder analysis
21 would come into play.

22 For protection of the public for off-site
23 releases, that's a 25-millirem basically from the time
24 of closure on. And that even applies during the
25 operational period for releases.

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1 MS. D'ARRIGO: Oh, so even at 1,000 years
2 of 10,000 years the members of the public should still
3 be limited to 25?

4 MR. GROSSMAN: Out to 1,000 years. Sorry
5 if I misspoke on that. And then beyond --

6 MS. D'ARRIGO: Okay. So after 1,000 years
7 then they can get 500?

8 MR. GROSSMAN: Then it becomes -- they
9 should -- the goal is minimize releases, or the
10 performance --

11 MS. D'ARRIGO: But who would be doing that
12 in 500 years?

13 MR. GROSSMAN: Sorry. In 500 years?

14 MS. D'ARRIGO: Yes, you said after 500
15 years the goal is to minimize releases.

16 MR. GROSSMAN: Sorry. It's 1,000 years.
17 If I said 500, I misspoke.

18 MS. D'ARRIGO: I'm sorry.

19 MR. GROSSMAN: So the compliance period
20 for a member of the public who's off site is 25
21 millirem to 1,000 years. After 1,000 years then the
22 off-site, as well as the intruder in this case, would
23 be to minimize releases or exposures with a goal of
24 500 millirem or another reasonable level based on
25 economic and technical considerations. Does that

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1 clarify it?

2 MS. D'ARRIGO: Well, I just want to know
3 why it's okay to expose people to 500 millirems a
4 year. That's an extremely high amount. Why should
5 people be able to get that from a low-level
6 radioactive waste facility?

7 MR. GROSSMAN: Okay. I understand where
8 you're coming from, and I appreciate that.

9 MS. D'ARRIGO: Well, I'm wondering what --
10 I mean, because even a -- well, reactors can't give
11 off that much radioactivity, so why can a low-level
12 radioactive waste disposal site?

13 MR. GROSSMAN: Okay. Thank you for the
14 question. The 500 millirem came from Commission
15 direction to staff on this protective assurance period
16 and we have developed in the FRN; and I don't remember
17 the justification right now --

18 MS. D'ARRIGO: Okay.

19 MR. GROSSMAN: -- the details of the
20 justification, but there is a discussion of that
21 period and the goal in the FRN. And I apologize. I
22 don't know if David Esh or Chris McKenny recall the
23 specifics of that.

24 MR. MCKENNY: There is already limits of
25 -- this is Chris McKenny. There are limits already in

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1 the decommissioning requirements under Part 20, under
2 14.03 for restricted release for potential doses up to
3 either 100 or 500, depending on how durable your
4 institutional controls are. And that's for the
5 decommissioning of all sites. And the 100 and 500
6 again also appear in what are public dose limits. In
7 this case the Commission chose to use the 500
8 millirem, similar to the restriction requirement, the
9 restricted release requirements of decommissioning
10 being that we do do -- we do have the durable controls
11 expected at a low-level waste site (inaudible) design
12 and siting and other (inaudible) mechanisms.

13 MS. D'ARRIGO: Okay. I don't accept it,
14 but I hear you. Thank you. And if you're taking
15 comments, then we go on record opposing that both in
16 the decommissioning restricted release rule and in
17 this one. It should not follow suit on that.

18 MR. GROSSMAN: Thank you, Diane, for that
19 comment.

20 Anyone else on the phone wish to ask a
21 question or submit a comment?

22 MR. CLAUBERG: Hi, this is Martin
23 Clauberg. I'm a contractor to DOE, Portsmouth/Paducah
24 Project Office in Lexington. I have a quick question
25 on slide 30. Your second bullet talks about emphasis

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1 on long-lived radionuclides. Have you operationalized
2 or defined what you mean by "long-lived
3 radionuclides?" And more importantly, what do you do
4 with daughter products that probably or that might be
5 even more of an issue? And have you thought about
6 defining that or putting some definitions on those
7 considerations?

8 MR. GROSSMAN: We do. Thank you for that
9 question. In Section 61.2 of the regulation the
10 definitions focus on -- or there is a definition for
11 long-lived radionuclides. They essentially come out
12 to -- and it addresses also the daughter products,
13 because in some cases they may be longer-lived than
14 the parent. And so, just because a radionuclide isn't
15 necessarily long-lived itself doesn't mean it wouldn't
16 be considered long-lived based on the progeny that may
17 come out. But 61.2 deals with the definition of long-
18 lived radionuclides, and you'll find more information
19 there about it.

20 MR. CLAUBERG: Thank you.

21 MR. GROSSMAN: I see Martin Clauberg. Oh,
22 never mind. John Greeves, your hand is still up. Do
23 you still have a question?

24 MR. GREEVES: No, I'm trying to figure out
25 how to put my hand down.

1 MR. GROSSMAN: Okay. All right. No
2 problem.

3 Okay. Christina Brown, do you have a
4 question?

5 (No audible response.)

6 MR. GROSSMAN: Okay. With that, we'll
7 move on. I'll mute all again.

8 So the next section deals with the
9 guidance on the inadvertent intruder. I'm going to
10 talk a little bit first about the requirements in the
11 regulation. We have a performance objective for
12 inadvertent intrusion in Part 61 because disposal in
13 near-surface intrusion is possible, though we consider
14 with the controls that it's unlikely. And so, we use
15 the analysis in the performance objective to assist
16 the decision making for the regulatory agency given
17 that it is in the near surface. We have separate
18 performance objectives because while controls are
19 required the Commission feels that they cannot be
20 solely relied upon to limit exposures to an
21 inadvertent intrusion.

22 And so, figure 4-1 from the guidance here
23 kind of summarizes the requirements for demonstrating
24 that an inadvertent intruder is protected. And they
25 deal with demonstrating that the waste is acceptable

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1 for disposal, as well as for waste that needs it.
2 Intruder barriers are adequate to protect the
3 intruder. And then also that the licensee conducts
4 and inadvertent intruder assessment. And that's
5 really the newest part of this revision and the
6 proposed rule was to conduct a site-specific and
7 inadvertent intruder assessment.

8 So, we'll move on to slide 34. It is a
9 new analysis and the requirements are specified in
10 61.13(b). The requirements focus largely on the scope
11 of the analysis. And the inclusion of intruder
12 barriers and also uncertainty and variability. The
13 performance objective you can find in 61.42. And like
14 the performance assessment there is a requirement to
15 update the inadvertent intruder assessment at closure.

16 The overview, it's similar to the PA, but
17 it's a more stylized calculation. And a key component
18 of the inadvertent intruder are the receptor
19 scenarios, and they allow consideration of the
20 uncertainties because it is a stylized calculation.
21 And unlike the performance assessment during the
22 compliance period, the dose limit for the intruder is
23 500 millirem. And the rationale behind that comes
24 from the original development of Part 61 when the
25 waste classification tables were developed. While

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1 inadvertent intrusion was considered unlikely, it was
2 still possible. And so, there's an implicit
3 probability built into this that raises the limit up
4 above what a member of the public might be allowed to
5 receive.

6 On slide 36, as I mentioned, the receptor
7 scenarios are a key component of any inadvertent
8 intruder assessment. And the guidance talks in quite
9 a bit of detail about how to define intruder receptor
10 scenarios for the assessment. Generally, there are
11 normal activities or other reasonably foreseeable
12 pursuits that are consistent with expected activities
13 in and around the site at the time of closure, and
14 that largely is specified in regulation.

15 Again, it does allow some flexibility for
16 a licensee to consider what I term generic intruder
17 receptor scenarios which are consistent with the
18 scenarios that were used to develop Part 61
19 originally. Things like an intruder construction
20 scenario where someone comes on to dig the foundation
21 of a house, and then also intruder agriculture where
22 someone then lives in the house constructed on site
23 and raises animals and crops on site versus a licensee
24 may also select site-specific intruder scenarios that
25 would be consistent with the expected activities

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1 around the site at the time of closure.

2 And the table on the left is from the
3 guidance, table 4-1. And it lays out kind of general
4 types of scenarios. The staff has kind of described
5 both plausible and implausible scenarios, and in
6 general plausible scenarios should be considered by
7 the intruder assessment. Reasonably foreseeable
8 scenarios would be used to demonstrate compliance with
9 the performance objective, whereas less likely but
10 plausible might be used to risk inform the decision or
11 also be used to demonstrate that there's adequate
12 defense-in-depth. So you can find quite a bit of
13 information in the guidance about the receptor
14 scenarios and how to construct them.

15 With that then, on slide 37 we're seeking
16 feedback on the adequacy of the guidance to
17 demonstrate an adequate inadvertent intruder
18 assessment, as well as is the guidance clear, how to
19 develop that assessment, and then again are there
20 things that should be in guidance versus regulation?

21 With that, I'll pause here and give folks
22 a chance to ask questions briefly. We're running a
23 little bit behind schedule, so we'll take a little bit
24 of time, but not too much to give a chance for
25 questions.

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1 So, let me scan up and down. I don't see
2 anybody with a hand up.

3 Okay. I'll open the mics for anybody on
4 the phone. Okay. No questions from the phone?

5 (No audible response.)

6 MR. GROSSMAN: I will mute everybody and
7 we'll move on to the next (inaudible).

8 Okay. So slide 38. We'll move right on
9 to 39. And we're now into the site stability analysis
10 section of the guidance.

11 Early challenges with Part 61 facilities
12 arose -- or with commercial low-level waste disposal;
13 there was no Part 61 initially -- arose from site
14 stability issues. Mostly infiltration of water
15 because of unstable sites. Site stability generally
16 examines active natural processes. And the
17 performance objective is that there will be reasonable
18 assurance that there will not be a need for ongoing
19 active maintenance. The stability of the site would
20 cover both the compliance and the protective assurance
21 periods.

22 And part of the reasoning for extending it
23 to the protective assurance period was to ensure that
24 site stability was also considered, that it wasn't
25 just solely relying on engineered controls to ensure

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1 stability. And I think you'll find a description of
2 that in the *Federal Register* notice as well.

3 On slide 40 we talk a little bit about the
4 analyses. Site stability in the analyses encompasses
5 stability of the waste, the stability of the disposal
6 site, as well as the surrounding environment. So it's
7 looking at those three components. And the main
8 components of the guidance really focus on what are
9 disruptive processes, how one might conduct the
10 technical assessment of site stability, and then some
11 guidance on the use of engineered barriers in site
12 stability analyses. And generally site stability is
13 -- while its own performance objective is generally
14 demonstrated in the context of meeting the performance
15 objectives at Section 61.41 and 61.42, which deal with
16 the protection of the public and protection of
17 inadvertent intruders.

18 On slide 41 we'll go into a little bit of
19 each of the three main areas of the site stability
20 guidance. It talks about disruptive processes and
21 which disruptive processes should be evaluated in the
22 analysis, describes considerations for do these
23 processes cause interactions between them, so their
24 effects, cumulative effects from the processes. And
25 then three, do the likelihood and consequence of the

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1 disruptive processes impact the performance
2 objectives? Generally, the processes should be
3 consistent with the waste if the hazard from the waste
4 is low and the need to consider disruptive processes
5 further out in time may not be necessary.

6 And the processes that are discussed in
7 the guidance include natural anthropogenic and
8 subsidence and settlement. The natural processes
9 include geomorphic processes such as erosion and
10 sliding. They include tectonic processes from
11 earthquakes and so forth, and as well as other
12 processes like climate change and fires. And
13 generally they're considered, thus the little green
14 circle here.

15 We describe anthropogenic processes and
16 the guidance generally said they do not need to be
17 considered largely because direct anthropogenic
18 processes would largely be bounded, we believe, by the
19 intruder analysis, where if someone comes onto the
20 site and actually intrudes into the waste. And then
21 again, subsidence and settlement processes would be
22 included.

23 Slide 42 talks a little bit more detail
24 about the technical assessment and it describes kind
25 of what are the available codes and tools to do a site

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1 stability assessment that are available to licensee
2 and applicants? It discusses different approaches
3 such as a design-based approach or a model-based
4 approach. I design-based approach is akin to what is
5 currently done for uranium mill tailings where your
6 design is trying to achieve some objective. And this
7 is generally appropriate for shorter-lived waste,
8 whereas a model-based approach might be generally more
9 appropriate for long-lived waste. And in this case
10 you're using a model to demonstrate that the stability
11 would be maintained over long periods. Licensees are
12 free to use either of these or a combination of the
13 methods that are described with proper justification.

14 And then, so on the left through the
15 bullets we describe kind of the process for the
16 technical assessment. And for those of you familiar
17 with performance assessment, it's somewhat similar.
18 You describe your site, you screen the processes and
19 define the scope, characterize the information and
20 perform your assessment and integrate or and iterate
21 as necessary, and as well as provide model support.
22 And the integration step there is focused on
23 integration with the performance assessment in the
24 inadvertent intruder assessment.

25 Slide 43, we talk a little bit about

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1 engineered barriers in the site stability analysis.
2 And the guidance provides information that a licensee
3 should provide when using barriers for site stability.
4 It also provides quite a bit of detail about closure
5 caps and covers in particular because those tend to be
6 a common engineer barrier at low-level waste sites.
7 It also talks about monitoring of the barriers, both
8 performance monitoring and interpretive monitoring
9 where you may rely on secondary variables rather than
10 say the release is from the site to monitor the
11 performance of the barriers.

12 Generally the steps for including
13 engineered barriers are described here. You just
14 would describe the barriers, provide a technical
15 basis, describe any uncertainty associated with their
16 performance, and then demonstrate the suitability of
17 the American models that are used to demonstrate
18 engineered barriers remain stable, conduct sensitivity
19 analysis, provide model support and as well as quality
20 assurance and quality control issues.

21 So for the site stability analysis we're
22 seeking feedback again on the adequacy of the
23 guidance, the clarity of the guidance and guidance
24 versus regulation.

25 And with that, I'll see does anybody have

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1 any questions on the WebEx? Please raise your hand.
2 Okay. I'll un-mute everybody and give folks on the
3 phone a chance.

4 Okay. If you have a question, please
5 state your name and then ask your question.

6 MR. GREEVES: This John Greeves. Can you
7 hear me?

8 MR. GROSSMAN: Yes.

9 MR. GREEVES: Okay. My question runs --
10 well, really it's a comment. I think what this
11 proposed rule has done is stretched stability from
12 what used to be 500 years to 10,000. And I think you
13 and others are familiar with the fact that the
14 Commission only requires 200 to 1,000 years for the
15 long-lived radionuclides at the mill tail site. And
16 that's something that the Commission has been able to
17 review and accomplish over decades, but I know of no
18 instance where the Commission has required anybody
19 else to demonstrate stability of barriers and surface
20 features for 10,000 years. So it's a huge stretch to
21 move this out 10,000 years and I believe that the
22 basis for that needs to be stated or move it back to
23 what it used to be, which is something within the 200
24 to 1,000 years time frame that the mill tailings live
25 with and can deal with, and how to do that. I don't

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1 know how you demonstrate 10,000-year stability.

2 MR. GROSSMAN: Okay, John. Thank you
3 for that comment.

4 Does anyone else have a comment or a
5 question?

6 PARTICIPANT: Yes, you didn't need to
7 demonstrate 10,000 -- well, I guess you did need to
8 demonstrate 10,000-year compliance because there were
9 long-lived nuclides in there before. But now with
10 allowing much longer radionuclides into these sites,
11 you've obviously got to do something.

12 MR. GROSSMAN: I think that was --

13 PARTICIPANT: There's a difference between
14 compliance demonstration and 61.44, which is directed
15 towards stability. Those are two different topics.

16 MR. GROSSMAN: Okay. Thank you for those
17 comments.

18 All right. I don't see anybody else. I'm
19 going to go ahead and put everybody back on mute and
20 we'll move forward.

21 Okay. The next section deals with the
22 protective assurance period and the analyses for that.
23 This is the second tier of the three tiers or three
24 time frames and it extends from 1,000 to 10,000 years.
25 It's required for all types of low-level waste. And

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1 the proposed rule is as an optimization type process
2 rather than a comparison to a dose limit. The goal
3 then is to minimize doses. And as we mentioned
4 before, with an annual dose below 500 millirem or a
5 level reasonably achievable based on technical and
6 economic considerations.

7 On slide 47 the guidance focuses on the
8 simplest approach being just extending the performance
9 assessment and the inadvertent intruder assessment to
10 the second time frame. Unless changes are necessary
11 to address uncertainties with the long time frames, we
12 think that that's the easiest approach.

13 With that note, there may be some
14 features, events and processes from the compliance
15 period that may vary somewhat in the second time
16 frame, either the frequency of occurrence or they may
17 vary temporally. Like the rates and so forth, things
18 may change. And so, those things would -- the
19 guidance talks about how to consider those sorts of
20 features, events and processes.

21 The guidance talks about different types
22 of analyses: comparative alternative analysis where
23 you compare the different alternatives, as well as
24 cost-benefit type analyses with minimization, and when
25 those may be or may not be appropriate. And the

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1 general approach in the guidance is what we've kind of
2 termed a risk discounting approach. And so, if
3 there's high risk, then you generally have high
4 effort.

5 And so in this figure on the right, which
6 is from the guidance, at level zero toward the bottom
7 of the inverted triangle if a licensee demonstrates
8 that they have a few millirem of releases or exposures
9 to the intruder in the second time period, then we
10 wouldn't expect that the level of effort would be as
11 great as if you were approaching the 500 millirem goal
12 or exceeding that.

13 And one thing I did want to note, because
14 I'm not sure it's been entirely clear to folks, is
15 that this threshold of 500 millirem or a level that's
16 reasonably achievable, that level could be justified
17 to go up or down based on those technical and economic
18 considerations. That depends on the site and the
19 considerations involved. And so, those sorts of
20 arguments would be evaluated as part of the regulatory
21 process.

22 Slide 48 then. Again, I'll pause here to
23 give folks a chance to ask questions or comment on the
24 adequacy of the guidance to demonstrate or conduct
25 protective assurance analyses as well as is the

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1 guidance clear? And then are there things that belong
2 in guidance versus regulation?

3 So, we'll stop here and I'll see if
4 there's any hands up from the WebEx.

5 And I don't see any. I'll un-mute
6 everybody and give folks a chance to ask questions.
7 Please state your name and ask your question or
8 provide a comment.

9 (No audible response.)

10 MR. GROSSMAN: Okay. Hearing none at this
11 time, I'll put everyone back on mute and we'll move
12 forward.

13 On the slide 50, now we're into the
14 performance period, which is the third time frame.
15 And this would be applicable to times after 10,000
16 years. The difference with this versus the other
17 times frames is that it applies only if there's
18 sufficient waste present and the guidance and the
19 regulations specify through table A; and I'll talk
20 about that in a little bit more detail, the
21 concentrations are based on a disposal site average
22 using a sum of fractions approach and the goal of the
23 performance period, the performance objective is to
24 minimize impacts to the extent reasonably achievable.

25 We also specify in the regulations

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1 requirements for the analyses namely that it should
2 assess how the disposal site limits long-term impacts
3 and should identify design features and site
4 characteristics.

5 Slide 51 here is a copy of the table.
6 Largely the table was derived from the 61.55 Class A
7 limits for the long-lived radionuclides. The only
8 major changes are that in table 1, which is from
9 61.55, it's long-lived -- or it's transuranic
10 radionuclides with a half-life greater than -- I think
11 it was five years. I don't recall the exact half-life
12 from that table. But we've changed that now to long-
13 lived alpha emitting to include uranium in that list.
14 Otherwise, it's generally the same as those. Or the
15 same radionuclides. Excuse me.

16 Moving on to slide 52, this is an example
17 of the approach. And in general, in the upper left
18 box, do you exceed the table A values for your site?
19 And then you follow the flowchart. You need to
20 conduct the analyses. There's also consideration that
21 there may be other site-specific conditions that
22 necessitate the analyses even though you don't exceed
23 those values. And the guidance talks about those.
24 Some examples are provided here. Like travel times
25 that exceed 10,000 times, engineered barriers that are

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1 expected to last more than 10,000 years are a couple
2 of examples that -- but a licensee may still want to
3 conduct this analyses just to demonstrate that the
4 performance objective is met if those conditions are
5 there for the site.

6 And slide 53. We'll pause again to get
7 feedback on the adequacy of the approach for the
8 performance period analyses, (inaudible) on the
9 averaging approach for the concentrations, on the
10 adequacy and clarity of the guidance, and then again
11 guidance versus regulation.

12 So if anyone has a comment or question on
13 the WebEx technology, please raise your hand.

14 Okay. I'll un-mute all the mics for the
15 rest of the participants. If you have a question,
16 please state your name and then ask your question or
17 provide your comment.

18 MS. FORINASH: This is Betsy Forinash from
19 DOE. I'm just curious about that observation you made
20 about site-specific conditions that necessitate the
21 analysis and longer-lasting engineering barriers. It
22 just seems like a little bit of a perverse punishment
23 to engineered systems that have particularly robust
24 barriers. And I was wondering if there's any
25 discussion of that or the trade-offs and

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1 consideration --

2 MR. GROSSMAN: Yes.

3 MS. FORINASH: -- that and developing
4 that.

5 MR. GROSSMAN: Yes, I think the guidance
6 -- and if you'll look, you'll find this, that the
7 guidance talks about some of those examples. And what
8 they're focused on is to ensure that there's enough
9 support for the longevity of those things. So if an
10 engineered barrier is expected to last more than
11 10,000 years, the reason the guidance recommends that
12 the analyses be considered is to show -- is to be able
13 to provide enough support that those barriers would
14 last as long as they're expected to from the other
15 analyses.

16 MS. FORINASH: Okay. Thanks.

17 MR. GROSSMAN: Any other questions or
18 comments before we move forward?

19 (No audible response.)

20 MR. GROSSMAN: Okay. We'll put everybody
21 (inaudible) and we'll move onto the next topic.

22 So the next section deals with the
23 defense-in-depth analyses. And first we'll talk about
24 the safety case. The Commission direction for the
25 proposed rule was to include the safety case concept

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1 in the regulation and they defined the safety case in
2 their direction as the combination of defense-in-depth
3 and the performance assessment, and that these should
4 be used to support the licensing decision. And so,
5 we've indicated here kind of the Part 61 version of
6 the safety case. Part 61 has long included implicitly
7 many of the elements of the safety case, but this
8 would make it more explicit of what comprises the
9 safety case in the regulation.

10 So now, we'll spend the rest of the time
11 on defense-in-depth on slide 56. I've provided here
12 the definition of defense-in-depth, and this is copied
13 from the guidance, but it's also in the regulation.
14 The guidance talks about some of the terms from the
15 definition such as what are multiple layers, what are
16 independent layers, what are redundant layers? It
17 talks a little bit about what is safety margin. And
18 then it also talks about how you might risk inform the
19 defense-in-depth protections.

20 And so, for multiple layers it provides
21 categories of multiple layers, and the point of the
22 multiple layers is to ensure that the system is not
23 dependent on any single layer for protection. But the
24 guidance categorizes those. And in this figure on the
25 lower left you see some of the categories. So we have

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1 barriers generally, which can be both active and
2 passive, controls, which generally are active type
3 controls because they need someone to maintain them,
4 and then also personnel could respond to accidents and
5 so forth, which could provide another layer of
6 defense-in-depth. And so, that kind of visually
7 describes the different categories that the guidance
8 describes.

9 The guidance talks about what we mean by
10 independent layers, and generally they're there to
11 minimize common cause failures. And then also
12 redundant layers are focused on the safety functions
13 so that you always ensure that there's at least -- or
14 more than one safety function being relied upon. It
15 doesn't necessarily mean that there's two of each
16 thing, because especially with natural barriers that's
17 not always as possible. But the important thing that
18 the guidance emphasizes is that the safety functions
19 provided by those layers -- that there's redundancy in
20 the safety functions. And the perspective there is it
21 can be on an individual layer of protection, but
22 generally what the concern is for the regulators is on
23 the system as a whole. Is there adequate defense-in-
24 depth?

25 The safety margin. The guidance talks

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1 about safety margin, and basically that's just the
2 excess safety function provided by the system after
3 the demands are met. And a lot of times the way the
4 guidance recommends demonstrating that is using the
5 results for -- if you recall back to the inadvertent
6 intruder scenario, the plausible scenarios there were
7 reasonably foreseeable and less likely but plausible.
8 So for some of the less likely but plausible that risk
9 informs the decision, you may use those to demonstrate
10 that there's adequate safety margin to show that even
11 in those you're not going to exceed the performance
12 objectives. That would be one approach.

13 Move on to slide 57. The guidance kind of
14 lays out the process. And those we use the term
15 "analysis" here, this doesn't necessarily mean that
16 the defense-in-depth analysis is a quantitative model
17 like the performance assessment or the inadvertent
18 intruder assessment. In general the guidance talks
19 about using the results from those to build the
20 arguments for what defense-in-depth protections are
21 provided by the disposal site in the facility.

22 So the process would be to identify what
23 those protections are, describe the safety functions
24 provided by those protections, and then using the
25 results of the other analyses demonstrate that there

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1 is safety margin, which may vary over the life cycle
2 of a facility and the different time periods analyzed,
3 as well as the risks from the waste and the remaining
4 hazard.

5 In general, the guidance talks about
6 safety margin relative to the performance objectives,
7 and so there's a description of how you demonstrate
8 the safety margin for the different time periods. And
9 then also a discussion of uncertainty. And like I
10 said earlier, defense-in-depth is generally on the
11 less likely but plausible scenarios to ensure that
12 there is an adequate margin of safety.

13 And we talked about the last bullet,
14 relying on the results of other analyses, so I'll move
15 on to the next slide.

16 So slide 58. We'll pause here again to
17 give folks a chance to ask questions or comment on the
18 adequacy and clarity and then guidance versus
19 regulation for defense-in-depth.

20 I'll go to the folks from the WebEx first.
21 If anyone would like to make a comment or ask a
22 question, please raise your hand using the technology.
23 And then if I don't see anybody, then I will ask later
24 for the callers as well.

25 Okay. I'll un-mute the mics for the folks

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1 on the phone. If you have a question, please state
2 your name.

3 MR. MICHLEWICZ: This is Dave Michlewicz
4 again, DOE. You mentioned common mode failure. Isn't
5 an inadvertent intrusion of form of common mode
6 failure for subsequent exposure?

7 MR. GROSSMAN: In the sense that they're
8 defeating multiple barriers simultaneously?

9 MR. MICHLEWICZ: Right. Let's say
10 somebody drills a well there. They bring up some
11 (inaudible). You know, they get exposed, but the well
12 is there for others to us afterwards.

13 MR. GROSSMAN: Yes, I see your point there
14 and I understand the comment.

15 MR. GREEVES: Chris, this is John Greeves.
16 Can you hear me?

17 MR. GROSSMAN: Yes, John. Go ahead.

18 MR. GREEVES: Frankly, defense-in-depth is
19 a little bit in the eye of the beholder. I'm just
20 finding it awful -- or trying to figure out how are
21 people going to demonstrate defense-in-depth? It's a
22 lot of things, and you can point at them, but again
23 defining whether that's demonstration of defense-in-
24 depth is frankly in the eyes of the beholder.

25 MR. GROSSMAN: Okay, John. Thank you.

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1 All right. Any other comments or
2 questions before we move on?

3 (No audible response.)

4 MR. GROSSMAN: Okay. I'm going to put
5 everybody back on mute, and we'll move on to slide 60.
6 We'll just jump ahead to 60. The next section is on
7 waste acceptance, the guidance for developing waste
8 acceptance program. The proposed Part 61 contains new
9 requirements for developing waste acceptance criteria
10 and allows flexibility for licensees to use either the
11 waste classification (inaudible) or develop site-
12 specific waste acceptance criteria. As we mentioned
13 earlier in response to a question licensees would
14 still be required to demonstrate that performance
15 objectives are met and conduct the analyses regardless
16 of which of these systems or which of these approaches
17 they chose.

18 The requirements are in a new section,
19 Section 61.58, which replaces an old section, and it
20 focuses on three areas. One, what are the
21 requirements for the waste acceptance criteria? Two,
22 what are the requirements for characterizing the waste
23 and then requirements for a certification program to
24 demonstrate that the waste actually meets the
25 acceptance criteria.

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1 Go to slide 61. We'll talk a little bit
2 about the criteria. The criteria can be established,
3 as I mentioned, from the waste classification tables
4 or the results of the technical analyses. They
5 generally would include what's the allowable
6 radioactivity in the waste, what are acceptable waste
7 form characteristics, as well as container
8 specifications. And then they could include also
9 restrictions and prohibitions on waste. An example of
10 those might be some of the restriction and
11 prohibitions that are currently in Part 61 for the
12 minimum requirements for waste stability. And so, all
13 of those are described in the guidance in further
14 detail about how one would demonstrate the waste
15 acceptance criteria.

16 In general the criteria should demonstrate
17 that the performance objectives are met and they
18 should focus on significant radionuclides and waste
19 form characteristics. And they may include a
20 combination of both concentration limits and total
21 inventory limits for the site.

22 We talked about the waste classification
23 system. This is a little flow diagram about which
24 requirements apply to the waste if the waste
25 classification system is used. There are minimum

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1 requirements and then there are stability
2 requirements, as well as intruder requirements. And
3 so, this just gives you an indication of when those
4 different requirements may apply. And I've taken this
5 little excerpt from the guidance.

6 In terms of acceptable characterization
7 methods, licensees should describe what those methods
8 would be. And they can include direct and indirect
9 methods and the guidance talks about both of those
10 types of characterization methods. It points to
11 existing NRC guidance such as our recently completed
12 Branch Technical Position on concentration averaging.
13 Characterization should focus on the inventory, on the
14 waste forms and the containers, and it can use a
15 graded approach. So as a waste stream becomes more
16 hazardous, that characterization may -- the level of
17 characterization may need to increase. And then also
18 defining what's acceptable uncertainty in the
19 characterization data. And so, it provides some
20 guidance on that.

21 And finally, the requirements specify a
22 certification program, and so the guidance describes
23 what that program might look like and what's needed
24 for that program. It talks about who's responsible.
25 It discusses how and when the waste would be

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1 certified. It talks about the documentation would be
2 necessary for certification. The program should
3 include how the waste would be managed to maintain its
4 certification once its certification is achieved. And
5 then the guidance also talks about after certification
6 period reviews of the waste acceptance criteria, the
7 characterization methods, as well as the certification
8 program. And again, it also talks a little bit about
9 mitigation. If it's found that the waste acceptance
10 criteria from -- based on new information learned to
11 not actually ensure that the performance objectives
12 would be met. So there's a little bit of discussion
13 of that at the end of the waste acceptance chapter.

14 Okay. So on slide 65 we're seeking
15 feedback on the adequacy and clarity of the guidance
16 and whether some of this should be in guidance versus
17 regulation.

18 And with that, if folks on the WebEx
19 technology want to raise their hand to ask a question
20 or comment, we'll go to them first and then we'll go
21 to the phones next.

22 Okay. I don't see any hands up so I'll
23 un-mute the phones. And again, if you have a
24 question, please state your name and then ask your
25 question.

1 MS. BROWN: This is Christina Brown. Can
2 you hear me?

3 MR. GROSSMAN: Yes, Christina. Go ahead.

4 MS. BROWN: I've got a question. In terms
5 of class A waste not meeting the stability
6 requirements, the class A waste potentially containing
7 DU which is long-lived, isn't that an issue if the DU
8 waste have to meet the stability requirements?

9 MR. GROSSMAN: Yes, so that's one thing I
10 was trying to emphasize with the -- let me go back up
11 to it -- with demonstrating the performance
12 objectives. So regardless of which method is used,
13 they still need to demonstrate the performance
14 objectives are met. And so, it's possible with a
15 unique waste stream like the depleted uranium where
16 though it's class A the analyses may indicate that
17 additional protections are required over what would be
18 normally required for class A waste.

19 MS. BROWN: Okay. Thank you.

20 MR. GROSSMAN: Anyone else on the phone?

21 (No audible response.)

22 MR. GROSSMAN: Okay. Hearing none, I'm
23 going to move forward. I've run a little bit over the
24 time I promised; I apologize for that, but we're
25 almost finished. I'll put everybody back on mute and

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1 we'll go on.

2 This last section deals with performance
3 confirmation. And for those who may not be familiar
4 with what performance confirmation is, it's generally
5 a program of tests, experiments or analyses to
6 evaluate and verify the accuracy of the information
7 that was used to demonstrate the performance
8 objectives. We included this in the guidance. Though
9 there is no specific requirement for performance
10 confirmation in Part 61, we felt this would be useful
11 for licensees as part of the monitoring process and so
12 forth. And we believe it is supported by the
13 regulation even though it's not specifically required.

14 And the elements of a performance
15 confirmation program could include verification of
16 site conditions, the barrier performance and the
17 defense-in-depth protections within the limits that
18 were assumed in the analyses and in the designs. It
19 could include monitoring of the disposal site
20 performance, as well as verification of arguments from
21 the safety case and generally would be performed
22 during operations in the institutional control period.
23 Obviously after that then the site would no longer
24 necessarily be actively maintained. It would rely on
25 the passive institutional control. So, we felt it was

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1 a way for licensees to proactively generate
2 information to update their analyses periodically and
3 to help develop particularly the update that would be
4 required for closure.

5 We'll stop here for another pause if folks
6 want to comment on this section. We're seeking
7 feedback again on the adequacy and the clarity of the
8 guidance, whether this is appropriate for the guidance
9 given that there are no specific requirements in the
10 regulation. So, if anybody on the WebEx technology
11 wants to comment or ask a question, please raise your
12 hand.

13 Okay. I don't see any. I'll open the
14 phone lines. If you have a question, please state
15 your name and then ask your question.

16 (No audible response.)

17 MR. GROSSMAN: Okay. Hearing none, we'll
18 wrap up then here. Put everybody back on mute. We'll
19 finish up.

20 The next section deals with the
21 appendices, and I just wanted to provide a highlight.
22 We'll go through these quickly, but give you a flavor
23 of what's in the appendices.

24 Slide 70 describes that we have a number
25 of maps, hazard maps in the appendices on the site

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1 suitability characteristics. And so we go through a
2 number of areas in the United States that may present
3 a hazard. And I just want to caution that given the
4 granularity of these maps we're not suggesting that
5 these can be relied upon to include or exclude a
6 hazard for a particular location. We give a general
7 flavor of the types of hazards that may need to be
8 considered and then to do a more detailed site-
9 specific assessment.

10 On slide 71 I talked at the beginning
11 about FEPs resources. We have a number of generic
12 FEPs lists that can be used to begin generating
13 scenarios as (inaudible) processes. And we've got
14 some starter lists and some comprehensive lists, and
15 I've identified those here. And then there are a few
16 examples as well in the appendix on the FEPs on
17 identifying, categorizing and screening FEPs that
18 we've borrowed from experiences at Hanford, SRS and
19 the Clive, Utah sites.

20 There are also some additional approaches
21 to scenario analysis, and I've listed some of those
22 here that are described further in the appendices.

23 And then we also have some examples on
24 site stability analyses. We have an example of a
25 model-based approach from West Valley erosion modeling

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1 and a design-based approach from the Moab, Utah
2 uranium mill tailing site. So those are there to help
3 licensees and applicants and regulators understand a
4 little bit more about those approaches.

5 I got a question from Diane about what are
6 FEPs. I apologize. As a regulator I often lapse back
7 into acronyms. FEP stands for features, events and
8 processes. So thank you for pointing out that I
9 didn't explain that.

10 I'd also be remiss if I didn't thank all
11 the contributors who helped develop this document.
12 They effort was led by Dr. David Esh of the NRC staff,
13 as well as Priya Yadav, the project manager. And then
14 we had significant contributions from Cynthia Barr and
15 Hans Arlt as well. So I wanted to make sure I got a
16 plug in for their hard work.

17 And finally, if you have any questions, I
18 would suggest that first maybe you go to our low-level
19 waste disposal site, and I've included the link yet
20 again. You can find a lot of information there on the
21 background and so forth. And if that doesn't scratch
22 your itch about the rule, you can contact either
23 Stephen Dembek or Gary Comfort, the two project
24 managers for the rule. And for the guidance you can
25 contact Priya Yadav. She was the project manager for

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1 the guidance. And of course you're always free to
2 contact myself. I've included my information on the
3 title slide of this presentation.

4 So that concludes my presentation. I will
5 open the lines again for any final comments, questions
6 you may have. Thank you for your attendance and
7 patience. I apologize for going over a few minutes.

8 And let's see, let me go through -- I'll
9 just open up the lines. And if you have any questions
10 that you wish to -- let me see. I'm still trying open
11 the lines. Excuse me. Oh, they're open already, it
12 looks like. If you have any questions about any of
13 the topics we discussed today or any other topic
14 related to the rulemaking, we'd be happy to take those
15 now.

16 (No audible response.)

17 MR. GROSSMAN: Okay. Hearing none, if you
18 wish to make comments on the format for this
19 presentation, I will gladly take those. You can
20 contact me directly. We're always interested in
21 improving the experience. And I know we had a few
22 SNAFUs in the beginning, so I appreciate your patience
23 with me and the technology. But again, you can feel
24 free to submit any comments you may have for how we
25 can improve the format of our meetings directly to me.

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1 And with that, we'll close the meeting.
2 Thank you for your attendance.

3 (Whereupon, the above-entitled matter was
4 concluded at 3:22 p.m.)

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