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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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DISCUSSION ON PROPOSED 10 CFR PART 61 RULEMAKING

PUBLIC MEETING

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TUESDAY, APRIL 28, 2015

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ROCKVILLE, MARYLAND

The Meeting met at the Commissioners' Conference Room, One White Flint North, Rockville, Maryland, at 9:30 a.m.

PRESENT:

FRANCIS "CHIP" CAMERON, Facilitator

LARRY CAMPER, NRC/NMSS

GARY COMFORT, NMSS

DAVID ESH, NRC/NMSS

JOHN GREEVES, JTG Consulting

CHRISTOPHER GROSSMAN, NRC/NMSS

LISA LONDON, NRC Staff Counsel

THOMAS MAGETTE, PricewaterhouseCoopers

CHARLES MAGUIRE, Texas Commission of Environmental
Quality

DANIEL SHRUM, EnergySolutions

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JOHN TAUXE, Neptune and Company

A-G-E-N-D-A

9:30

Opening Remarks and Panel Member

Instructions.....4

9:45

Presentation on Submitting Comments

on Proposed Rule Language.....8

10:00-11:30

NRC Presentations, Panel Discussions and
Opportunities for the Public to Ask

Questions on the Proposed Rule Language.....9

11:30-12:30

Lunch.....119

12:30-3:20

NRC Presentations, Panel Discussions and
Opportunities for the Public to Ask

Questions on the Proposed Rule Language.....120

3:20-3:30

Summations and Closing Remarks.....267

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P R O C E E D I N G S

9:31 a.m.

MR. CAMERON: Good morning, everybody, here in Rockville and on the phones, and my name is Chip Cameron and I'm going to serve as your facilitator for the meeting today, and welcome to the meeting.

I'd like to just spend a couple minutes on meeting process issues so you know what to expect today and I'd like to talk about the objectives in the meeting, the format for the meeting, some simple ground rules and just go over the speakers and agenda with you.

In terms of objectives, they're very simple. We want to make sure that the NRC staff presents clear information to you on the rulemaking process and rulemaking issues for this low-level waste rulemaking.

And secondly, I want to give the NRC an opportunity to listen to the commentary from our panel today that we have in Rockville from the audience in Rockville and for those of you on the phone and who might be sending us questions through the Web.

In terms of format, the focus is going to be at the panel that we have at the table - a panel of experts of the subject of low-level waste.

In a moment, I'm going to go and have them

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1 introduce themselves to you and the goal for the panel
2 is not just for them to give their perspectives on the
3 issue but to engage in a dialogue among all of you where
4 you give your perspective.

5 But we also want to hear what your thoughts
6 are on what someone else on the panel might say.
7 Although the focus is at the table, we're going to go
8 out to the public periodically through the day for any
9 questions or comments they might have.

10 Again, the audience we have here in
11 Rockville, the phones, the Web, and I'll cue you in to
12 when we are going to be going out to you.

13 In terms of the ground rules, I would just
14 ask - we are going to go to the panel first so I would
15 ask anybody who is on the phones or in the audience to
16 just refrain from asking questions until we get to that
17 portion of the meeting.

18 I would also ask that only one person at
19 a time speak, most importantly, so we can give our full
20 attention to whomever has the floor at the moment but
21 also so that our stenographer can get a clean
22 transcript, and I'll introduce her - I'll introduce her
23 now.

24 We have Katie Kolodzie, our
25 stenographer-court reporter. She'll be taking a

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1 transcript of the meeting.

2 And I should just note that although this
3 meeting is being transcribed and the transcript will
4 be part of the record that informs this rulemaking,
5 we're asking all commenters at today's meetings - the
6 panel, anybody on the phones or on the Web - we're asking
7 you to formally submit comments to the NRC and that will
8 be done in accordance with the process that Gary Comfort
9 will describe to you in a few minutes.

10 Okay. And we do - when we do get out to
11 the phones I'm going to ask you - or in the audience
12 I'll ask you to introduce yourself so that we have that
13 information for the transcript.

14 Now, in terms of the agenda and speakers,
15 and Steve, is this available to everybody - the agenda
16 - who is on the phones or the Web? They can gain access
17 to that, right?

18 Okay. Cool. We're going to start with
19 Larry Camper, who is the division director of low-level
20 waste, among other things division. He's going to give
21 a welcome and also some background on this rulemaking.

22 And we'll have some time for clarifying
23 questions after Larry's talk. We're then going to go
24 to Gary Comfort, who's with the rulemaking branch at
25 the NRC and Gary will describe the rulemaking process

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1 and how you submit comments.

2 Again, we'll go to him for some clarifying
3 questions. Then we're going to get to the heart of the
4 rulemaking and we have Dave Esh and Chris Grossman of
5 Larry's staff with us.

6 And if you look at their slide package,
7 which is entitled "Overview of Proposed 10 CFR Part 61,
8 Technical Requirements and Guidance," on the overview
9 slide you're going to see a number of rule topics.

10 Now, what's going to happen is either Dave
11 or Chris will give a five- or six-slide overview of that
12 particular topic. For example, the first topic is
13 analyses time frames.

14 We're then going to go to discussion from
15 the panel and we'll go out to the public for any comments
16 that they have and then we'll move through item by item.

17 We break at 11:30 for an hour and if we
18 could get through the first three topics - through
19 intruder assessment by 11:30 we'll be doing well.

20 And with that, I would just thank you for
21 being here. Before we go to Larry, let's go to
22 introductions from the panel and we'll start with Tom
23 Magette.

24 And if you could just tell us what your
25 expectations - besides introducing yourself what's

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1 your expectations for the meeting and/or the rulemaking
2 might be and if there's a particular site that you have
3 an interest - the low-level waste site - please mention
4 that also.

5 So, Tom, let's go to you and then we'll
6 proceed down.

7 MR. MAGETTE: Thanks, Chip. My name is
8 Tom Magette. I'm with PriceWaterhouseCoopers. I'm
9 the managing director of the nuclear offering and the
10 capital projects and infrastructure group.

11 Most of my interest is around some of the
12 newer concepts. As everybody here I'm sure knows,
13 we've had two or three versions of preliminary ruling,
14 which that we've had an opportunity to review and so
15 I think the process heretofore has been really good for
16 the public to be able to have input and influence how
17 the rule has taken shape so that in terms of a proposed
18 rule I think what we have already reflects a lot of that
19 input, which I think is a good thing.

20 But still, of course, there are new
21 concepts in here that came from the most recent SRM.
22 So most of my comments and questions go around that.
23 Obviously, we're still in the formulation stage of
24 making comments. It's a 120-day comment period.

25 So a lot of what we're trying to do is

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1 understand what staff has in mind so that can help shape
2 our comments on the rule.

3 MR. CAMERON: Okay. Thank you. Dan?

4 MR. SHRUM: Dan Shrum with Energy
5 Solutions. I am in charge of a regulatory affairs
6 group. My expectation is to understand from NRC how
7 they expect us to implement some of the rules that are
8 being written.

9 This is - we know how to implement the
10 existing Part 61. We think we have done - not just my
11 organization but others have done a good job of
12 implementing what we have now as Part 61.

13 But what will it be like and what will be
14 the pitfalls for some of the changes and some of the
15 new terms, some of the new expectations and what will
16 that really look like.

17 And as the NRC wrote it what were their -
18 what were they envisioning and how would that look when
19 you actually go to implement it - implement the new
20 rule.

21 MR. CAMERON: Thanks, Dan. John?

22 MR. TAUXE: John Tauxe with Neptune and
23 Company. I'm an environmental engineer and principal
24 with Neptune.

25 I appreciate the invite to be here and

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1 comment on this. Part 61 is integral to a lot of the
2 work we do - that I do, doing performance assessments
3 and my expectations for the meeting are to have a great
4 dialogue here to bring up some of the perhaps trickier
5 issues that are just inherent in this rule and its
6 application and its implementation.

7 And I guess what I can bring to the table
8 is having worked through this several times on
9 different sites. I have experience with modeling a
10 number of different low-level waste sites both within
11 NRC regulated, agreement state-regulated and
12 DOE-regulated ones.

13 And so from my perspective I get into some
14 of the details of the difficulty of how to apply this
15 to actually building models and making decisions and
16 that sort of thing. So looking forward to getting into
17 that.

18 MR. CAMERON: Thanks, John. And Charles?

19 MR. MAGUIRE: I'm Charles Maguire and the
20 director of the radioactive materials division at the
21 Texas Commission on Environmental Quality.

22 I'm honored to participate in the panel
23 this morning. This is very important work. First and
24 foremost, I want to say to NRC how much I appreciate
25 the way that they have chosen to work with us as an

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1 agreement state.

2 They actually refer to me as their
3 colleague and, as you can imagine, as a state regulator
4 how pleasant that is to be able to work with a federal
5 agency that considers you their colleague.

6 The other thing is I really want to
7 compliment the Nuclear Regulatory Commission for its
8 efforts to build consensus around both the policy and
9 the scientific aspects of Part 61.

10 It's complex. It's important. It's a -
11 it's something that will, I think, greatly impact the
12 way we regulate low-level radioactive waste disposal
13 sites.

14 And the - I remember three years ago
15 yesterday when the executive management of my agency
16 moved me from the water quality division to the
17 radioactive materials division and one of the first
18 things I was briefed on by my technical folks is Part
19 61, which was emerging, and it's been part of my
20 management of the division.

21 We are very supportive of what is moving
22 forward in Part 61 and so for today mostly what I'm
23 interested in is their discussion as we further build
24 consensus both from a policy and scientific standpoint.

25 MR. CAMERON: Thank you. Thank you,

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1 Charles. John?

2 MR. GREEVES: Can you hear me? My name is
3 John Greeves and I've spent many years in these
4 environments - 30 years. Ten years ago I was able to
5 retire from Nuclear Regulatory Commission.

6 You all can look forward to that someday,
7 and so during those years here at NRC I had a role as
8 an engineer manager supervisor in implementing Part 61.

9 I learned a lot and I would also say since
10 the last decade that I moved on and have been consulting
11 for industry and government I have learned a lot from
12 a different perspective. So it's been a rich
13 experience and thank you for having me part of the
14 panel.

15 I think I have something to offer, and my
16 observation is I think the proposed rule has some really
17 good things that are in it and I, as you will hear by
18 the discussion, I very much support those
19 clarifications.

20 Frankly, I'm still reviewing the ruling.
21 This is a massive amount of material so I'm bringing
22 my preliminary thoughts to this meeting. I haven't
23 been able to dig into the guidance document. My time
24 is limited.

25 I'm an individual consultant so I don't

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1 have a team of people backing me up. So anyhow, but
2 my expectations are I'm going to do some active
3 listening and engagement and I'll just sort of leave
4 with having implemented regulatory activities
5 including Part 61.

6 Having been on the outside and implemented
7 them for various agencies that, to me, a rule should
8 obviously provide adequate protection. I think Part
9 61 does it now, by the way.

10 It's been a work horse for a long time.
11 Used properly, like the state of Texas, it works. Did
12 it need some update? Yes. But I subscribe to a
13 relatively simple rulemaking format, one that is clear
14 and understandable and implementable.

15 So you'll see, I think, during the
16 discussion that that's where I'm coming from. I think
17 there's a lot of good in here.

18 There are some things I'm concerned about
19 and I want to actively listen to other folks' ideas on
20 that, and we'll all do a service come July and provide
21 coherent comments. So thank you for inviting me.

22 MR. CAMERON: Okay. Thank you. Thank
23 you, John.

24 Thank you all and let's go to Larry Camper.
25

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1 MR. CAMPER: Thank you, Chair.

2 Good morning, everyone. And first, let me
3 welcome everyone and all those online as well. We do
4 appreciate your listening in to this first of our public
5 meetings on the revision to Part 61.

6 I want to thank the panelists. Across the
7 table I see colleagues and friends and a tremendous
8 wealth of experience and expertise and so the panel
9 discussion today will be of great value to what we are
10 trying to do and I think it will be particularly
11 valuable given that in our subsequent public meetings
12 we don't intend to have a panel.

13 Rather, we'll go and communicate with
14 members of the public and solicit input. So the
15 dialogue that we have today helps to frame the issues
16 and stimulate the staff for what kinds of questions we
17 might want to ask of members of the public in the future.
18 So very value added.

19 I also want to thank all those listening
20 in online. I hope that there's a number of members of
21 the public out there, members from agreement states,
22 because we're going to cover a lot of things today that
23 are very important.

24 So welcome and let's move ahead. Next
25 slide. Let me say from the outset there's a couple

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1 slides that I inserted into my package in the eleventh
2 hour this morning - it's not in your package - that we
3 will make the complete set available.

4 There was one or two slides I wanted to add
5 to make sure we go back to the beginning. Our objective
6 today, of course, is to discuss the proposed revisions
7 to the commission's low-level radioactive waste
8 disposal regulations.

9 We want to encourage the submittal of
10 comments. We're going to have a lot of dialogue today.

11 The meeting is being transcribed but, of
12 course, we do need formal written comments to be
13 considered by the staff as we proceed down the road on
14 the proposed rule language and then to answer any
15 clarifying questions that you might have.

16 We have a 120-day comment period. We're
17 having a total of, I think, five public meetings during
18 this 120 days. So the staff is moving with some fervor
19 to get a lot of input so I do encourage everyone to
20 comment. Next slide, please.

21 So why are we doing this rulemaking? Let
22 me say, first, something that I - I want to pick up on
23 something that John Greeves said.

24 I don't think that any member of the public
25 should feel that because this agency, our agency, is

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1 doing this rulemaking that the regulations that are in
2 place they aren't adequate to protect public health and
3 safety, because they are.

4 The four sites that are operated
5 commercially today by agreement states are all
6 functioning very safely, very effectively and they're
7 doing a very good job.

8 But the fact of the matter is we have
9 certain developments that have come along that cause
10 us to believe that a rulemaking is in order.

11 Another point to be made about the safety
12 of the sites today it is also important for the members
13 of the public to realize that the actual operations that
14 take place today at all four of the commercial low-level
15 disposal sites are substantially greater than were
16 envisioned in the Part 61 rulemaking.

17 So considerable conservatism and safety
18 have been added to the practice, if you will. So
19 nothing about this rulemaking should imply inadequacy
20 in terms of protecting public health and safety today.

21 But the reason we are doing this rulemaking
22 is to require low-level radioactive waste, LLW,
23 disposal licensees or license applicants to ensure that
24 LLW streams that are significantly different from those
25 LLW streams considered during the existing Part 61 can

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1 be disposed of safely.

2 Now, next slide. It is true and accurate
3 that this all started around the disposal of large
4 quantities of depleted uranium, and this is a slide that
5 you do not have in your package, and I do apologize for
6 that but we'll make it available to you.

7 And it actually goes back to the initial
8 direction from the commission to the staff in 2005 in
9 a document identified as CLI-05-20 Memorandum and
10 Order. And it is an instruction that came to the staff
11 as a result of the Louisiana Energy Services
12 Proceedings - the adjudicatory proceedings that took
13 place.

14 And the commission in this direction,
15 which is very long, makes a statement, among other
16 things, and perhaps I should read it because of those
17 who can't see it.

18 The commission is aware that in creating
19 the 61.55 waste classification tables the NRC
20 considered depleted uranium but apparently examined
21 only specific kinds of depleted uranium waste streams,
22 "the types of uranium varying waste being typically
23 disposed of by an NRC licensee" at the time.

24 The NRC concluded that those waste streams
25 posed an insufficient hazard to warrant establishing

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1 a concentration limit for depleted uranium in the waste
2 classification tables.

3 Perhaps the same conclusion would have
4 been drawn had the Part 61 rulemaking explicitly
5 analyzed the uranium enrichment waste stream.

6 Now, the reason that I feel it's important,
7 especially for members of the public, to put this matter
8 in context is because the commission, as you will hear
9 during my commentary, has charged the staff with
10 calling out certain issues, gathering comments about
11 certain issues.

12 So I think it's important for us all to go
13 back to the beginning of the direction that the staff
14 received. I'll share with you why the staff handled
15 the matter the way that we did and all this is designed
16 to facilitate that comment gathering that I'll point
17 out specifically along the way.

18 Next slide. The words continue from
19 CLI-05-20 memorandum in order. But as part 61 - Part
20 61's FEIS - that's final environmental impact statement
21 - indicates, no such analysis was done. Therefore, the
22 commission directed the NRC staff outside of this
23 adjudication to consider whether the quantities of
24 depleted uranium at issue in the waste stream from
25 uranium enrichment facilities warrant amending Section

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1 61.55(a)(6) or the Section 6155(a) waste
2 classification tables.

3 So this was the starting point because
4 remember that the LES proceeding was about a uranium
5 enrichment facility. But as you will see, over time
6 the staff realized that the issue was bigger than and
7 more complicated than only the possibility of large
8 quantities of depleted uranium.

9 Next slide, please. This slide is in your
10 pack. So this slide picks up on SECY-08-0147 and this
11 is some dialogue from the commission back to the staff
12 after we have prepared the cited SECY paper 08-0147.

13 And the commission said to the staff
14 previously in the adjudicatory proceedings for the
15 Louisiana Enrichment Services - LES - license
16 application the commission determined that depleted
17 uranium was properly classified as low-level
18 radioactive waste.

19 Although the commission stated that a
20 literal reading of 10 CFR 61.55(a)(6) would render
21 depleted uranium Class A waste, and that hasn't changed
22 and nothing in this rulemaking changes that or proposes
23 to change that, it recognized that the analysis
24 supporting this section did not address the disposal
25 of large quantities of depleted uranium.

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1 Outside of the adjudication the staff was
2 tasked to evaluate this complex issue and provide more
3 specific recommendations to the commission.

4 The staff, when assigned the task that I've
5 already cited, undertook an analysis and what the staff
6 did in this analysis was to determine whether or not
7 depleted uranium was suitable for near surface
8 disposal.

9 And the reason that we started there is
10 because one of the contentions filed during the LES
11 proceeding indicated that it was not suitable for near
12 surface disposal.

13 The staff was aware in 1980 that the
14 Department of Energy had undertaken a programmatic
15 environmental impact statement that evaluated four
16 forms of depleted uranium in terms of its suitability
17 for near surface disposal and determined in that
18 programmatic environmental impact statement that it
19 was suitable for near surface disposal.

20 So the challenge the staff took on then is
21 or is it not suitable for near surface disposal.

22 We determined that it was, albeit under
23 certain conditions. And when we communicated with the
24 commission in SECY 08-0147 we provided that analysis
25 and we made certain recommendations.

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1 Next slide. There were four options in
2 the paper. Option two and option four ultimately came
3 to bear as directed by the commission and what you see
4 specifically here is direction given to the staff by
5 the commission in the SRM - the staff requirements
6 memorandum - in 2009 that was associated with the paper
7 08-0147 that the staff prepared during '08, of course.

8 And the two tasks that the commission gave
9 the staff at that time was to specify a requirement for
10 a site-specific analysis, technical parameters, i.e.,
11 new definitions and performance period to support such
12 analysis and develop a guidance document. That was
13 option two in our paper.

14 And then the other direction from the
15 commission, which was a variation of option four in that
16 paper, said that in a future budget request the staff
17 interpreted that to mean that the commission wanted us
18 to pursue that matter.

19 The staff should propose the necessary
20 resources for a comprehensive revision to risk inform
21 the Part 61 waste classification framework with
22 conforming changes to the regulations as needed using
23 updated assumptions and referencing the latest ICRP
24 methodology. This effort should explicitly address
25 the waste classification of depleted uranium.

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1 That assignment remains with the staff to
2 address. However, as you will see, that second
3 assignment was modified by the commission along the
4 way.

5 Now, the reason I think it's important,
6 again, to point all this out is to put a context around
7 certain issues that the commission wants us to ask the
8 public to comment upon.

9 And I know that, for example, the panel
10 members here are acutely aware of all this but some
11 members of the public might not be quite this aware,
12 and if the public is going to comment on it they need
13 to have the complete picture to understand and to then
14 prepare their comments accordingly.

15 Next slide. Then the commission provided
16 the staff with additional direction. It is fair to say
17 that our commission has had a great deal of interest
18 in this rulemaking and in this issue.

19 Each of the commissioners along the way
20 have expressed a great deal of interest and it's very
21 important to them and thus we got a lot of direction
22 from the commission, probably more so than we typically
23 get in a rulemaking.

24 But that's okay. The staff has a good
25 understanding of what the commission wants us to do and

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1 that's the way it should be.

2 So just prior to the staff providing its
3 proposed rule to the commission, you might recall that
4 the staff had put out two versions of the staff's
5 language previously to gather comments and have public
6 meetings.

7 But just before we provided the rule to the
8 commission we got specific direction from the
9 commission as cited in SRM-COMWDM-11-002 and
10 COMGEA-11-002 in 2012.

11 This came from Commissioner Magwood and
12 Commissioner Apostolakis at the time. They led the way
13 in creating this SRM which, of course, was ultimately
14 vetted by the entire commission.

15 But in that direction the commission said
16 to the staff to provide flexibility to use current
17 International Commission on Radiological Protection -
18 ICRP - dose methodologies.

19 Recall that Part 61 is based on ICRP II and
20 so the commission, clearly, wanted to see more current
21 ICRP be available to licensees. Use a two-tiered
22 approach of performance - tier one, compliance period
23 covering a reasonably foreseeable future; tier two, a
24 longer period based on site characteristics and peak
25 dose to a designated receptor that is not a priori;

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1 number three, flexibility to establish site specific
2 waste acceptance criteria based on performance and
3 intruder assessments; and number four, to balance
4 federal-state alignment and flexibility.

5 Next slide. From that same SRM the
6 commission provided some additional direction that
7 said that these changes considered as part of the
8 current rulemaking should be limited to revisions to
9 address the four issues identified - the four that I
10 just cited.

11 The staff should separate from any actions
12 resulting from this SRM and continue to engage
13 stakeholders to pursue the possibility of other
14 risk-informed revisions to Part 61 as outlined in SECY
15 10-0165.

16 And to refresh everyone's memory, that is
17 the SECY that the staff prepared that laid out a number
18 of options to be considered for major revisions
19 including the so-called comprehensive revision to Part
20 61.

21 So there's several moving parts going on
22 simultaneously. Next slide. In that same SRM the
23 commission said recognizing that the path forward on
24 revisions on the issues outlined in SECY 10-0165
25 dependent upon the final content of the limited

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1 rulemaking the notation vote paper providing the
2 staff's recommendations on which if any of the
3 risk-informed revisions in 10-0165 should be
4 implemented should be submitted to the commission after
5 completion of this rulemaking.

6 The commission did not want anything to
7 slow down or compromise completion of this rulemaking
8 in a timely manner. Therefore, the staff was to
9 address that issue after the limited rulemaking.

10 Next slide. Along the way, the staff,
11 while working on 10-0165, gathered a lot of comments
12 from members of the public, the industry, as to whether
13 or not there was really any need to proceed with a
14 comprehensive rulemaking as articulated by the staff
15 in 10-0165.

16 We concluded that there was not a need and
17 we communicated that fact to the commission. The
18 commission agreed and in an SRM associated with 13-0001
19 in 2013 the staff should end further efforts associated
20 with SECY 10-0165 - the staff's approach for
21 comprehensive rulemaking to Part 61. So the staff
22 truncated those initiatives.

23 Next slide, please. Now, this particular
24 direction is very important because in addition to
25 adding context it specifically will point out something

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1 that the commission has asked the staff to gather
2 comments about, and that is why I take the time to go
3 through this context so that members of the public
4 specifically know what the commission has directed the
5 staff to ask for comments about. Comments today will
6 be greatly appreciated as dialogue.

7 Written comments, obviously will be needed
8 from members of the panel or members of the public or
9 members of industry.

10 And the commission said the following:
11 After the limited rulemaking was complete - that's this
12 rulemaking - the staff should provide a commissioner's
13 assistant note to the commission on the second
14 rulemaking effort.

15 The second rulemaking effort would be the
16 one that was earlier in the SRM 08-0147. Okay. The
17 commission's assistant note should outline the
18 objectives and time line for developing the regulatory
19 basis of the second rulemaking in consideration of the
20 outcome of the near term limited rulemaking that will
21 precede it - this rulemaking.

22 The commissioner assistant's note to the
23 commission should identify the specific comments that
24 have been received on the need for a second rulemaking
25 and clearly articulate the basis in accepting or

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1 dismissing those comments.

2 Stating that another way, given that the
3 commission has decided to proceed with the rulemaking
4 that would require a site-specific performance
5 assessment that would address the disposal of large
6 quantities of depleted uranium and other unanalyzed
7 waste streams, is there an efficacy for conducting a
8 second rulemaking?

9 The commission would like to hear about
10 that specifically and comments in that regard would be
11 greatly appreciated.

12 Next slide. In the direction that was
13 provided to the commission in a SECY - an SRM for SECY
14 13-0075, which was the SECY that the staff used to
15 provide the proposed rule to the commission, the
16 commission came back with certain direction and, again,
17 this is something the commission has specifically asked
18 the staff to get comments on, the proposed rule should
19 be published with a compatibility category B applied
20 to the most significant provisions of the revised rule
21 including the compliance period, the protective
22 assurance period and its analytical threshold and the
23 waste acceptance criteria.

24 The commission wants to know if that should
25 be compatibility B. Compatibility is always a

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1 sensitive issue for the agreement states.

2 Compatibility B requires a level of
3 exactness that is consistent with commission verbiage
4 and our regulations and oftentimes the states in this
5 case where the four sites are operated have some
6 different views about that. So the commission wants
7 to hear about that.

8 Realistic intruder scenarios based on
9 expected activities on and around the disposal site at
10 the time of closure should be used. Licensing
11 decisions are to be based on a defense in depth - DID
12 protections - for example, siting, waste forms and
13 performance assessment - PA - goals and insights. The
14 combination of DID - defense in depth - and performance
15 assessment is the safety case.

16 The safety case is a well-established
17 nomenclature term in the IAEA - the International
18 Atomic Energy Agency - language. It's a new term for
19 us but as a practical matter we've always been doing
20 a safety case.

21 But the commission specifically said that
22 DID plus PA equals safety case - and Dave Esh and Chris
23 will talk more about that - and conduct a thorough
24 review of the guidance with the low-level waste
25 community.

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1 Next slide. All right. So that's
2 context about the background of commission direction
3 and, again, the purpose was so that everyone including
4 those listening in would know specifically what the
5 commission wants to hear more about.

6 Now, in Part 61 that is in place today, has
7 been in place since 1982, in 61.1 you'll find some
8 language as to how the commission at that time chose
9 to impose or direct involvement by the agreement states
10 at the operating facilities around the Part 61 that was
11 created at that time.

12 The current language in this paragraph, in
13 61.1(a), says the following: Applicability of the
14 requirements in this part to commission licenses for
15 waste disposal facilities in effect on the effective
16 date of this rule will be determined on a case by case
17 basis and implemented through terms and conditions of
18 the license or by orders issued by the commission.

19 That specific language was included in
20 61.1(a) as a result of comments that were gathered
21 during the comment-gathering period leading up to the
22 implementation of the rule and as a result of some of
23 those comments this particular language became part of
24 Part 61.

25 And basically what those comments had

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1 asked for, and this is discussed in the statements of
2 consideration, is some flexibility for the agreement
3 states in implementing this rule.

4 As it turns out, all of the three states
5 at the time, because the site in Texas came, obviously,
6 much later, adopted Part 61 by 1988.

7 They adopted Part 61 essentially in whole
8 cloth with a few exceptions, but essentially in whole
9 cloth. So this is how the commission handled imposing,
10 if you will, the requirements of Part 61 on the
11 agreement states that had the operating sites at that
12 time.

13 Now, next slide. By contrast, today what
14 the commission has directed as and the question is who
15 would this action affect, and what the commission has
16 directed the staff to do is to have this proposed rule
17 affect existing and future low-level radioactive waste
18 disposal facilities that are regulated by the NRC or
19 the agreement states.

20 Why? Why the difference? That's a fair
21 question. And the difference goes something like
22 this. Today, we have an established regulatory
23 infrastructure in Part 61 that has been adopted by all
24 of the affected states - all four states that have
25 operating facilities.

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1 The essence of the issue today is different
2 than it was then because now what this is about is
3 requiring consideration and examination and regulatory
4 oversight for unanalyzed waste streams as compared to
5 what was evaluated at the time Part 61 went into effect.

6 That is the reason for the difference.
7 However, the staff and the commission is aware that
8 there may be sensitivity around this particular
9 approach and we encourage any of the agreement states
10 or members of the public to comment upon this approach
11 that the staff and the commission is undertaking in this
12 rulemaking because we know it's an important issue.

13 We are acutely aware at the moment that all
14 four of the operating sites exist within agreement
15 states and so their views around this particular
16 approach would be greatly appreciated and welcome.

17 Next slide. So in sum then the rationale
18 for the current rulemaking is the following and this
19 is, really, the essence of the issue. First of all,
20 it's about depleted uranium, especially from
21 enrichment facilities.

22 When we did our analysis we realized that
23 at the time it was on the order of 700,000 metric tons
24 of depleted uranium on the pads at Paducah and
25 Portsmouth, and then if one considered the potential

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1 for additional depleted uranium coming from enrichment
2 facilities we could go somewhere north of 1 million
3 metric tons of depleted uranium.

4 Low-level waste from DOE disposal
5 operations - there is considerably more and different
6 weights than was envisioned for disposal by the
7 Department of Energy than was considered at the time
8 of Part 61.

9 Waste forms and volumes have emerged that
10 weren't evaluated at the time Part 61 was developed.
11 Blended low-level waste at quantities greater than were
12 assumed at the time Part 61 was created and then new
13 technologies might generate unexpected low-level waste
14 streams such as, for example, reprocessing.

15 So the staff in developing this rulemaking
16 tried to put in place an overarching programmatic
17 assessment approach that could address any waste stream
18 regardless of what you call it or how you classify it.

19 Next slide. This is the first of several
20 public meetings. We have - our next meeting is in
21 Austin, Texas on May the 12th. Obviously, the WCS site
22 is in Texas.

23 On June the 2nd we will be in Columbia,
24 South Carolina. Obviously, the Barnwell site is in
25 South Carolina. We have a meeting on June 9th in

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1 Richland, Washington because of the site based in
2 Washington and then last but not least we have a meeting
3 on June 10th in Salt Lake City because that is where
4 the site is located at Clive.

5 Those meetings will take place between
6 6:00 and 9:00 p.m. in the evening and specific locations
7 are still being developed. So I beg your indulgence
8 for being wordy and for members of the public listening
9 in.

10 But, again, I do think it's important if
11 you're going to provide comments, especially those who
12 don't follow this every day like all of us do it's
13 terribly important to have that context and we do
14 welcome as many comments as can be provided we look
15 forward to our discussion today and, again, thank the
16 panelists, thank all of you in the audience and thanks
17 to those listening in. Thank you.

18 MR. CAMERON: Okay. Thanks, Larry.
19 That was a real useful tour de force on history and you
20 raised a couple of issues that I'm sure the panel would
21 like to discuss. Is that not coming through?

22 How's this, better? All right. Thank
23 you.

24 A couple of what I'll call process issues
25 that are in addition to all the technical topics that

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1 Dave Esh and Chris Grossman have the need for the second
2 rulemaking compatibility level.

3 So we'll get to those before the day is
4 over. I want to give the panel an opportunity to ask
5 Larry clarifying questions. This is not the time for
6 discussion but let's make sure that you understand what
7 he was saying and we'll test out the phone system while
8 we're at it in a minute.

9 Any clarifying questions from those of you
10 here at the table? John, go ahead and then we'll go
11 to the second John.

12 MR. GREEVES: Yeah, I'm not sure I'm going
13 to get an answer but you went into a topic that I'm
14 interested in. You pointedly showed 61.1(a) and I
15 think the states need to focus on what that says and
16 what the impact of a new rule would be on them.

17 I guess my question is it's in this rule.
18 It's not marked out. It says applicability of the
19 requirements in this part in effect on the effective
20 date of this rule.

21 So does that paragraph state - it's not
22 marked up.

23 MR. CAMPER: What's the last part?

24 MR. GREEVES: That sentence is in the rule
25 that you're proposing to keep. So I'm not a lawyer but

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1 to me what that says is the applicability of this new
2 rule on the effective date will be determined on a case
3 by case basis, which I'm happy with. If -

4 MR. CAMPER: You're referring to the
5 original rule?

6 MR. GREEVES: Well -

7 MR. CAMPER: Those are the original rules.

8 MR. GREEVES: It's also the proposed rule.
9 Am I saying this right? Do people understand what I'm
10 saying?

11 MR. CAMPER: No, it does not say that in
12 the proposal. The distinction that I drew, John, was
13 -

14 MR. GREEVES: Maybe I -

15 MR. CAMPER: Here's the distinction. In
16 1982 when Part 61 became effective the language that
17 you see there on that slide is currently set forth in
18 61.1(a) and the applicable part said that applicability
19 of the requirements in this part to commission the life
20 of this waste disposal facility is in effect on the
21 effective date of this rule.

22 That then will be determined on a case by
23 case basis and implemented through terms and conditions
24 of the license or by orders issued by the commission.
25 That's at the time the rule went into effect in 1982.

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1 Now, the difference is - the difference is
2 today this rule, the one that we're discussing, would
3 affect existing and future low-level rad waste disposal
4 facilities that are regulated by the NRC integrated
5 states at the time the rule becomes effective - this
6 rule.

7 There's a difference there, and as I said
8 the reason for the difference is that today what's
9 remarkably different is we are requiring the existing
10 agreement states that have this to require a
11 site-specific performance assessment to analyze
12 unanalyzed waste streams that weren't considered at the
13 time Part 61 was put into place.

14 So today we have an established regulatory
15 infrastructure that's been adopted by all four of the
16 states that have commercial sites and what the
17 commission is now asking them to do is take into
18 consideration all the requirements in this rule, which
19 basically is getting at analyzing unanalyzed waste
20 stream.

21 MR. CAMERON: And just to make sure -

22 MR. GREEVES: I think we're talking past
23 each other.

24 MR. CAMERON: - is what John Greeves read
25 applicable to the existing rule but not to this rule.

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1 Is that correct?

2 MR. GREEVES: I think that's what he's
3 trying to say.

4 MR. CAMERON: Yeah, that's what I heard.

5 MR. CAMPER: What I'm trying to say is -
6 what I'm saying is - I don't know what he's reading it
7 from. What I'm saying is I'm reading the language that
8 was put into Part 61 at the time, which some - there
9 have been some conversations where certain individuals
10 have interpreted the language that was put into 61.1(a)
11 as grandfathering.

12 It was not grandfathering. It was
13 providing flexibility for the then-operating sites to
14 bring to bear their regulations. They, in turn, all
15 chose to adopt Part 61.

16 What's different today is the commission
17 believes that now that we have an established
18 regulatory infrastructure and what this is all about
19 is really evaluating the five items that I cited in that
20 one slide it's appropriate to impose those requirements
21 on the agreement states now as part of this rulemaking
22 and not provide the same type of flexibility that was
23 provided when Part 61 went into effect in 1982.

24 MR. CAMERON: Okay. And Staff Counsel,
25 Lisa London has indicted to me that Larry's

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1 characterization is correct. And if we need to put a
2 further gloss on that later, we'll do that.

3 John? John Tauxe?

4 MR. TAUXE: John Tauxe. Well, I wasn't
5 going to ask about that, but now I have a particular
6 question. Where it says on the effective date of this
7 Rule, originally that was for the earlier Part 61.

8 MR. CAMPER: Are you referring to the
9 current Rule or the original?

10 MR. TAUXE: Well they both have that
11 language. I mean that language is not changed.

12 So when it says the effective date of this
13 Rule, does that now in the new version refer to the
14 effective date of the new version? Or is it still the
15 effective date of the original version?

16 MR. CAMPER: That's the date of the new
17 version. The version of the Rule that's under
18 consideration.

19 MR. TAUXE: Okay. Okay.

20 MR. CAMPER: And bear in mind by the way,
21 when this --

22 MR. TAUXE: So it's interesting. So the
23 language hasn't changed, but the date then changes.

24 MR. CAMPER: Well, of course.

25 MR. TAUXE: It's referring to this Rule

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1 meaning --

2 MR. CAMPER: Oh, of course.

3 MR. TAUXE: It's own, itself.

4 MR. CAMPER: Are you reading from the
5 proposed Rule?

6 MR. TAUXE: The proposed Rule and the
7 existing Rule are the same. It's the same.

8 MR. CAMPER: Well --

9 MR. TAUXE: But instead it says the date
10 of this Rule. And that's not --

11 MR. CAMPER: They're not quite the same if
12 you read on. You don't have --

13 MR. CAMERON: We do need a red line
14 strikeout for it.

15 MR. TAUXE: Well, if the red line
16 strikeout is accurate, then there's no change there,
17 so. Okay, this may be -- okay, it's just the last part
18 of the 60 --

19 MR. CAMERON: Let's get --

20 MR. TAUXE: But we can get to that in not
21 matter --

22 MR. CAMERON: Well, let's get a
23 clarification from Lisa right now so that we end the
24 confusion. Lisa?

25 MS. LONDON: I don't know that I'll end the

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1 confusion. I just did want to add a note that 61, that
2 sentence from 61.1 is not being changed.

3 You're correct. You made a note that it
4 remains the same. What I think Larry is pointing out
5 is that that was a part of the original rulemaking. And
6 it was intended to address comments received as a part
7 of the original rulemaking.

8 So the intent behind that particular
9 sentence is addressing the circumstances that were
10 occurring in 1982. It is not intending to apply to this
11 new rulemaking.

12 But it's certainly a -- I think you're
13 raising an excellent point. And you should make the
14 comment because perhaps it's something the Commission
15 should consider.

16 MR. CAMERON: Okay. I think that that is
17 clear. But we'll go back to John Greeves in a minute.
18 But John, if you want to ask your question. And then
19 we'll go to Charles.

20 MR. TAUXE: Yes, so the other question I
21 had was, although you're focused on these specific
22 areas, DU and that sort of thing, and flexibility. Are
23 you interested in comments on other areas as well?

24 It seems that there's an opportunity to
25 make other changes to Part 61 that might be useful even

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1 though they are not driven by those particular topics.

2 MR. CAMPER: I'm sorry, what's your
3 question? I was reading.

4 MR. TAUXE: Okay, so you identified the
5 particular topics that were of interest that were
6 driving the rule change here.

7 MR. CAMPER: Yes.

8 MR. TAUXE: Are you also interested since
9 there's the opportunity here to fix other parts of 61,
10 or modify other parts of 61, I don't mean to say fix
11 it. Are you also interested in feedback on other parts
12 of 61 that could be modified to improve it?

13 MR. CAMPER: We're always interested in
14 observations about things that might be changed. But
15 the Commission has directed us to do limited
16 rulemaking.

17 And they've been very explicit in the
18 direction to us to do a limited rulemaking. And a
19 limited rulemaking focuses around this requirement to
20 do a site specific performance assessment.

21 So, but for other things, I mean, that's
22 certainly -- we'll certainly entertain them and listen
23 to them and ponder. But that's the Commission
24 direction.

25 MR. CAMERON: And you'll note, on Dave and

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1 Chris' slides, their overview, the last topic is other.
2 So, when we get there, we can see what else you want
3 to offer.

4 Charles first and then we'll go to John to
5 see if there's anymore, and Dan. Go ahead Charles.

6 MR. MAGUIRE: Yes, I think we've already
7 demonstrated the importance of what we're here to do
8 today. And that is to focus on those areas where the
9 Commission is really seeking comments from us.

10 I appreciate having that clarified for me.
11 There's a lot with Part 61 that could be talked about.
12 I think it's important to understand here, thank you,
13 Larry for bringing us to that understanding.

14 There are some specific places the
15 Commission is asking that we provide them comments on.
16 And I do think that at least for safe nexus will help
17 us focus on what we need to be doing. Thank you.

18 MR. CAMERON: Okay. Let's go to Dan.
19 We're going to come back to you John. But let's go to
20 Dan.

21 MR. SHRUM: Two very specific questions
22 for you Larry, in your slide 10.

23 MR. CAMPER: Sure.

24 MR. SHRUM: SRM-13-0001, what are the
25 possible -- you asked us to comment. We will

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1 definitely comment.

2 This is the second time I've heard you say
3 that. But we planned on commenting on the need for the
4 second rulemaking.

5 But what are the possible outcomes? Or
6 can you -- because to me this reads that you have to
7 do a second rulemaking.

8 MR. CAMPER: Well, the Commission has
9 given us several pieces of direction around this topic.
10 The first part that came out of the SRM for 08-0147 when
11 it told the staff that that future budget, blah, blah,
12 blah, do that.

13 They subsequently then modified that along
14 the way. And you see the most recent modification, the
15 CA note to the Commission should identify the specific
16 comments that have been received on the need for a
17 second rulemaking. And clearly articulate the basis.

18 So, we interpret that direction change
19 along the way to imply that the Commission is asking
20 itself as to whether or not the original assignment to
21 proceed with the second rulemaking is still warranted
22 in view of the current rulemaking that is ongoing.

23 And I -- my view that the reason that the
24 Commission has done that is because the Commission has
25 now had a chance to examine the site specific

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1 performance assessment, which I would suggest is rather
2 comprehensive in nature.

3 And is asking the staff to gather comments
4 as to whether or not a second rulemaking to determine
5 specifically the classification of depleted uranium is
6 necessary.

7 MR. SHRUM: Yes.

8 MR. CAMPER: Because the approach as I
9 said, that the staff has used in our undertaking is
10 regardless of what you call it, regardless of what class
11 of waste it is, or what might emerge, the idea that a
12 cite specific performance assessment for a specific
13 site, will determine what, how much and in what form
14 and quantity, et cetera, can be disposed of at a given
15 site.

16 And so the Commission seems to be saying
17 to the staff, gather more information about the
18 efficacy for a second rulemaking.

19 MR. SHRUM: Okay.

20 MR. CAMPER: Is that clear?

21 MR. SHRUM: I had missed the word need.

22 Earlier part at --

23 MR. CAMPER: Yes, need is in their
24 language, yes.

25 MR. SHRUM: The need is in there, okay.

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1 And the second question on 13, the proposed rule would
2 affect existing in the future LLRW disposal facilities
3 that are regulated by the NRC or an Agreement State.

4 And you had mentioned the unanalyzed waste
5 streams and we'll just talk to you because that's what
6 this tends to go to. As I recall, depleted uranium was
7 analyzed. A deminimis standard was developed and it
8 didn't make it into the final rule.

9 MR. CAMPER: Uranium was analyzed.
10 Albeit in very small quantities. I don't recall the
11 exact numbers, but it was very small.

12 There was in the draft a value in the table
13 for uranium that did not make it into the final version
14 of the rule. And the reason for that, as best we can
15 ascertain by doing our research back to those days was,
16 as I said in my comments, there was essentially -- there
17 wouldn't be enough of this material to warrant
18 including it. That is a value in the table.

19 MR. SHRUM: Understood.

20 MR. CAMPER: Okay.

21 MR. CAMERON: Okay.

22 MR. SHRUM: Thank you.

23 MR. CAMPER: I want to make a comment.

24 MR. CAMERON: Go ahead.

25 MR. CAMPER: John and I -- going back to

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1 John Greeves question. I think I understand your point
2 John very clearly.

3 And your point is -- what I try to do in
4 my remarks was to put front and center a concern that
5 has been expressed with regards to the potential impact
6 on the agreement States. And in particular, a
7 particular Agreement State with regards to a site.

8 And what I was trying to do was draw the
9 distinction between the process that the Commission
10 chose to use at the time and the expectation that these
11 requirements would apply now. Now your point is very
12 well made. Because the language in 61.1(a) hasn't been
13 modified.

14 Maybe it should have been. Because as we
15 state in the FRN, this action would affect the proposed
16 rule, would affect existing and future LLRW disposal
17 facilities that are regulated by the NRC and an
18 Agreement State.

19 In other words, the driving force behind
20 that logic is that what is fundamentally different
21 today is that this is about requiring an existing
22 regulatory infrastructure to account for, to assess
23 unanalyzed waste streams.

24 The flexibility that was written into the
25 language of 61.1(a) at that time brought to bear among

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1 other considerations that the siting requirements set
2 forth in Part 61 had already been met. The sites
3 existed. And therefore there was a need the Commission
4 believed, to provide some flexibility.

5 Now if it's confusing that the language of
6 61.1(a) hasn't been changed to address the expectation
7 of the staff and the Commission at this point in time
8 that is a point very well made. Thank you.

9 MR. CAMERON: Okay. And if we need to
10 come back to this, we will. But John's question raised
11 the possible need for a revision when the staff gets
12 the final Rule.

13 I want us to move on. But I would like to
14 give the audience and anybody on the phone a chance to
15 chime in at this point since that was in the part and
16 presentation.

17 Anybody in the audience have a clarifying
18 question?

19 (No response)

20 MR. CAMERON: Okay, Arlene?

21 OPERATOR: Participants on the phone, if
22 you have a question, please press star one and state
23 your name clearly. One moment please while we wait for
24 our first question.

25 We have one person. Please state your

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1 name. The line is open.

2 MR. CAMERON: Hello?

3 OPERATOR: Our first question comes from
4 Susan Jenkins. Ms. Jenkins, your line is open.

5 MS. JENKINS: Thank you. This is Susan
6 Jenkins with the State of South Carolina. And I have
7 a clarifying question with regards to the proposed
8 language in 61.13, technical analysis.

9 The new proposed language states licensees
10 with licenses for land disposal facilities in effect
11 on the effective of this subpart, must submit these
12 analyses at the next license renewal or within five
13 years of the effective date of this subpart, whichever
14 comes first.

15 And the question I have is, hypothetically
16 if a facility that is existing now and is operating now
17 to accept waste, is closed at the time that this -- that
18 this proposed regulation comes into effect.

19 And if, hypothetically, the site were --
20 had gone through its post-closure observational
21 period, and was in the institutional control period,
22 whereby there is a license that's in effect, that it's
23 simply been transferred to the owner of the site, does
24 this apply then to the owner of the site which would
25 be the State?

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1 MR. CAMERON: Okay. Thanks Susan. I
2 think it's a good question. And Response from Larry?
3 Dave? Who's going to take this one?

4 MR. CAMPER: Well, I'll start. And I've
5 asked Dave or Chris to add to it.

6 Susan, I wasn't going to specifically
7 mention South Carolina, but since you have, the
8 Barnwell Site is not closed. It is correct in my
9 understanding, our understanding is that a particular
10 cell or cells are closed.

11 But the site in itself in totality is not
12 closed. And depleted uranium is a component of the
13 source term. And therefore, the expectations of the
14 language in this proposed Rule would necessitate
15 addressing that.

16 And there are particular parts of the
17 regulation that I would ask either Dave or Chris to
18 specifically point out, that do that. But you have
19 specifically pulled out the part in 61.13. There are
20 other parts as well.

21 So with that, my simple answer would be
22 yes. And if Dave or Chris want to elaborate, that would
23 be fine. Or Gary.

24 MR. CAMERON: David Esh?

25 MR. ESH: Yes, this is David Esh. I don't

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1 have a good answer for that question at this time. But
2 I'm going to think about it and talk about it with our
3 legal counsel to know what the right answer is.

4 So, it's a good question. It's a
5 complicated question. And I think that's the type of
6 thing we hope to get out of this meeting.

7 MR. CAMPER: And let me add to that too.
8 Susan, this is -- this is -- your question, is precisely
9 why I teed up this issue the way I did in my remarks.

10 We are very aware of South Carolina's
11 concerns. And I thought that presenting it the way
12 that I did, was a good way to put the issue front and
13 center without specifically identifying South
14 Carolina.

15 And I would reiterate what I said, we very
16 much want comments around this issue. So, we greatly
17 appreciate hearing from South Carolina.

18 MR. CAMERON: And Susan, thank you for
19 that question. And I put the question in the famous
20 parking lot. And there will be some consultation with
21 staff counsel. And we will come back to that before
22 the end of the day.

23 Arlene, any more people on the phone that
24 want a question?

25 OPERATOR: At this time, sir, there are no

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1 further questions in queue.

2 MR. CAMERON: Okay. We're going to go to
3 rulemaking process. But John, do you have a quick?

4 MR. GREEVES: Yes, just a comment. This
5 was a good discussion. And the -- I think it highlights
6 the importance of the paragraph you highlighted in your
7 opening comments about the applicability.

8 And Susan raised a question, there are many
9 questions in here, and I'll just observe, there are a
10 number of burdens that this new rulemaking would put
11 on, for example, the sited States. And that's why you
12 get these kinds of questions.

13 Because there is, as we'll talk later,
14 specifically, there's some new burdens here. And I
15 think sited States are going to be interested in what
16 does the applicability of the requirements in this Part
17 mean to me about those new burdens?

18 So, I've raised it. And I think it's
19 something we're going to, you know, hear more about.
20 So, thank you very much. I'm not asking you the
21 question.

22 MR. CAMERON: Thanks John.

23 MR. CAMPER: You know I agree. Let me
24 just add something to this. I agree. The point, and
25 I really appreciated Susan's question.

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1 I also would point out, kind of getting at
2 Dave's careful answer. We also have to consider, if
3 you go look at the analysis that the staff did when we
4 did 08-0147, large quantities of depleted uranium.

5 What was large quantities of depleted
6 uranium? 50 thousand tons. Was 50 thousand tons of
7 depleted uranium disposed of at Barnwell? Probably
8 not. That's the impression we have.

9 So my point is, the implications of the
10 applicability of the requirement to the State of South
11 Carolina needs to be carefully analyzed as to what is
12 that actual impact, given the quantity of depleted
13 uranium that is a component of their source term.

14 So it's a very specific, technical
15 consideration.

16 MR. GREEVES: Yes, I'm not focusing on any
17 particular sited State. I think there are burdens in
18 this Rule across the board that bears some discussion
19 like this. So thank you for bringing it up.

20 MR. CAMERON: Okay. This is good. Good
21 discussion. Let's go to Gary Comfort on rulemaking
22 process. Gary?

23 MR. COMFORT: Good morning everybody, my
24 name is Gary Comfort. I'm a Senior Project Manager in
25 the Rulemaking and Project Management branch in the

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1 NRC's Division of Material Safety, State, Tribal and
2 Rulemaking Programs.

3 I'm the primary rulemaking lead for this
4 Part 61 proposed rule. And as such, you're welcome to
5 contact me anytime after this meeting if you have
6 questions in the future. And I have contact
7 information at the end of this package as well as is
8 also in the Federal Register Notice.

9 Next slide please. This morning what I
10 plan to do is quickly go over a couple of key aspects
11 of the process for the rulemaking. And later on we'll
12 have the discussion of course on the technical content
13 of the proposed rule itself.

14 As part of this presentation I plan to
15 quickly explain why we are actually doing this through
16 a rulemaking. The time line for the rulemaking. And
17 then most importantly for everybody, how to submit
18 comments.

19 I'm also going to be covering the time line
20 and comment submittal process for the draft guidance
21 that supports this rulemaking. Next slide please.

22 First of all, why are we doing this
23 rulemaking? Or doing a rulemaking to implement these
24 changes? The rulemaking is one way in which
25 Commission's policies can be implemented.

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1 In the long term it is best to regulate
2 through the development of rules. And not to regulate
3 through other aspects such as orders or specific
4 license conditions that may only apply to certain sites
5 or cause inconsistencies between the implementation of
6 it from those issues.

7 So rulemaking makes the requirements
8 generally applicable to everyone. Whereas the order
9 or license just applies to that one entity who received
10 the order and license condition.

11 Rulemaking is also a public process that
12 provides for stakeholder involvement. Which is very
13 important to us. It allows us to get views from people
14 that we may not have considered during the -- or had
15 an opportunity to consider during the rulemaking.

16 They may provide information that we
17 weren't aware of at the time. And they can also just
18 state, you know, their objections as to why it's going
19 to affect them more than they need to, you know, the
20 need to further the rule that it should be put in place.

21 It basically, we provide this defined
22 period to allow the comments, in this case 120 days.
23 And as it's a public process, also all the comments that
24 we receive will also be made publically available.

25 I mean, that's important because they'll

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1 be out on the web as we get them. To the extent we can
2 put them there or they're entered. Because people can
3 look at those comments and also get their own ideas for
4 additional topics for discussion they may want to
5 include.

6 In developing the proposed Rule, we do
7 consider recent research. Lessons learned from
8 implementation of existing regulations. Issues
9 identified during inspections of existing licensed
10 operations.

11 Recommendations from advisory boards.
12 And information included in any petitions for
13 rulemaking we may have received from other
14 stakeholders.

15 We also consider stakeholder input
16 received during the development of our Rule in areas
17 such as when we put out preliminary Rule language, you
18 know, that's been posted in the past for public comment.
19 All these aspects are considered in the development of
20 this proposed Rule language that we went out for public
21 comment now. Next slide please.

22 So this specific rulemaking was proposed
23 and published in the Federal Register on March 26, 2015.
24 We're requesting comments from all stakeholders on the
25 proposed Rule language.

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1 The public comment period lasts 120 days.
2 And will end on July 24, 2015. Now what's important
3 when we receive comments, is the more clearly you can
4 state your concern and any supporting information to
5 support -- you know, to support that concern, it makes
6 it easier for us to, and more efficient for us, to better
7 address your comment.

8 If we get a comment that basically says,
9 we don't like it, that's hard for us to deal with. I
10 mean, people don't like things.

11 You know, but if you give us the reasons
12 you don't like it, we can then go through and address
13 those reasons or make revisions to the Rule as necessary
14 because we did forget something or not realize there
15 was a certain aspect that we didn't consider.

16 The final rule is expected to be sent to
17 the Commission after this rulemaking comment period.
18 We'll basically take all the comments, go through, bin
19 them. And then we'll address them, each comment in
20 those bins.

21 And come out with a final Rule that we'll
22 present to the Commission. In that final Rule, we'll
23 include how we address the comments and any revisions
24 we've made to the proposed Rule.

25 We'll send that to the Commission. And

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1 our expected schedule is around 12 months from when the
2 Commission -- from when the rulemaking comment period
3 closes.

4 But the exact timing of course is dependent
5 upon other things. Particularly how many comments and
6 the complexity. We want to make sure that we do address
7 them appropriately and consider all of them completely.

8 Basically, the Commission will then
9 consider the Rule. And then provide additional
10 direction as necessary. Or direct us to publish the
11 Rule as final.

12 In general, we expect that to be some time
13 around, you know, three to four months. But again, it
14 depends upon what changes the staff has had to make as
15 a result of the Rule.

16 So we'd expect the final Rule to be
17 published possibly as early as sometime in the late
18 summer or fall time frame of 2016. It could be later
19 though, again depending upon any delays in the
20 schedule.

21 The final Rule right now is proposed to be
22 effective one year after its publication. And this
23 would be for any licensee or applicant in a
24 non-Agreement State.

25 The Agreement States have three years to

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1 -- after we publish the final Rule to implement their
2 own regulations that will be compatible with ours. And
3 they would generally have probably about a one year
4 effective time period also. Next slide please.

5 The next slide basically is just a
6 graphical look of what this rulemaking would be. And
7 give you, you know, based on a very optimistic time
8 frame of when the final Rule would be basically
9 implemented by, you know, by NRC, which would be around
10 August 2017.

11 That's being aggressive. And then the
12 States would have theirs implemented by 2020. States
13 can move faster if they want. But we generally ask them
14 to get it down within three years and, you know, we get
15 implementation after that.

16 Similarly the slide shows where we'd have
17 guidance, you know, in the schedule for that. Where
18 it goes, and I'm going to get more into the guidance
19 in a few minutes.

20 Another important thing to realize on the
21 comments -- well, I'll get into comments a little on
22 the second. Can we go to the next slide please?

23 There is multiple ways for you to submit
24 comments. They're listed in the Federal Register
25 Notice. But you can do it through the mail, email,

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1 through our website at www.regulations.gov. You can
2 hand deliver them or fax them.

3 Probably the most effective way and
4 efficient way for everybody is through the
5 www.regulations.gov. But we of course will take our
6 comments any ways that you would like to provide them.

7 On my next slide I do give the basically
8 the different ways that you can submit those comments.
9 More specifically, these are also restated from the
10 Federal Register Notice.

11 Again, if you choose to provide us
12 comments, which we hope you will, it's helpful that you
13 explain why you believe any particular provision is a
14 problem. Rather than just state that you're opposed
15 to it.

16 The more information that you can provide
17 to us, really does help us make, you know, address your
18 comment appropriately. You're encouraged to submit
19 the formal comments using any of the methods described
20 on this slide.

21 Again, since this is a public process, all
22 those comments will be publically available. And made
23 publically available. And they'll be addressed in the
24 final Rule.

25 Please note that also, the final Register

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1 Notice announces a proposed Rule for the opportunity
2 to comment on information collection aspects of the
3 proposed Rule. This is discussed in Section 10 of the
4 Federal Register Notice under the Paperwork Reduction
5 Act statement.

6 Note that that has a different comment
7 period and address for those comments that are
8 specifically exclusive to information collection
9 aspects of the Rule. Those are things like the record
10 keeping and record storage type information that you'll
11 have to do for the Rule.

12 And you know, how much paperwork you have
13 to deal with it. Those comments are due actually a lot
14 earlier. May 26, 2015. And they should be sent to
15 NRC's Office of Information Services or the Office of
16 Management and Budget as indicted again in Section 10
17 of the Federal Register Notice. Next slide please.

18 Next I wanted to discuss how to comment on
19 the draft implementation guidance for the proposed
20 Rule, which is found in draft NUREG 2175, Guidance for
21 Conducting Technical Analysis for 10 CFR Part 61.

22 This guidance document is also available
23 for public comment. We announced it in the same
24 Federal Register on March 26, 2015.

25 The guidance document provides more

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1 detailed information on the rules provisions. And
2 tries to give an idea of how we're going to implement
3 a lot of the regulations that we did in the draft
4 proposed Rule.

5 The comment period for the draft guidance
6 document also closes on July 24, 2015. And we
7 encourage you to look at that guidance document and
8 provide us comments on it.

9 We expect to finalize the guidance
10 document and publish it in a final form when we release
11 the final Rule. Next slide please.

12 There are slightly different methods to
13 provide comments on the guidance. This slide shows
14 those. Again, those are listed in the Federal Register
15 Notice for the guidance. So you can find those -- the
16 ways to submit there.

17 The comments on the guidance are important
18 to us. Because they tell us the need to -- you know,
19 where we need to provide additional information or
20 clarify any information that we provided.

21 Some of the guidance, you know, comments
22 from the guidance may also lead us to change the
23 regulations or draft regulations. Because, you know,
24 we realize maybe there's an issue or conflict in what
25 we really wanted to get done.

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1 Again, I encourage you to submit the
2 written comments using either of the two methods shown
3 on this slide for guidance. So, that's really my
4 presentation. Last slide please.

5 My contact information is on this slide.
6 You can email me or telephone me if you do have questions
7 after this meeting. Or throughout the rulemaking
8 process.

9 This information as I indicated for the
10 people on the phone, is also in the Federal Register
11 Notice. So, I'm welcome to any clarifying questions
12 on the process.

13 MR. CAMERON: Okay. Thanks Gary. And
14 we're going to try to move this along so we can get to
15 our first technical subject.

16 But important to have -- give
17 clarification on this issue. And I just wanted to
18 note, I read something earlier on about the transcript
19 will be part of the record that informs this rulemaking.

20 Well the transcript and the comments that
21 are provided today, which of course are going to be in
22 the transcript. That will be part of the formal
23 rulemaking record.

24 And with that, any clarifying questions
25 from the panel on the process?

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1 (No response)

2 MR. CAMERON: Okay. Arlene, does anybody
3 on the phone have a clarifying question on the
4 rulemaking process?

5 OPERATOR: Yes sir, we do have one. Our
6 first question comes from Mr. Paul Lohaus. Sir, your
7 line is open.

8 MR. LOHAUS: Hello Chip.

9 MR. CAMERON: Hello.

10 MR. LOHAUS: Paul Lohaus here. You hear
11 me okay?

12 MR. CAMERON: Yes, we got you.

13 MR. LOHAUS: Okay. I tried to get in the
14 queue earlier. I just wanted to offer a clarifying
15 comment, maybe some background on the question of
16 applicability to existing sites.

17 There's two comment sections in line two
18 of the Final Environmental Impact Statement that really
19 address both the question of applicability to existing
20 sites and compatibility. And the question of
21 applicability to existing sites really is two separate
22 issues.

23 One is, the applicability to existing
24 sites. And the second is Agreement State
25 compatibility. And the intent at the time by the

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1 staff, and really the Commission, was that the
2 applicability to existing sites, and really Commission
3 licensees, because the Rule applies to Commission
4 licensees, was that it be handled on a case by case
5 basis.

6 And the question of compatibility was
7 addressed separately. And the intent there was that
8 the performance objectives and the waste
9 classification, waste form, and waste manifest
10 requirements had to be implemented on a uniform basis
11 across the nation.

12 And the requirements on classification,
13 waste form and manifest were actually delayed one year
14 to provide time for the Agreement States to adopt those
15 provisions. So that when those provisions went into
16 effect, they were done uniformly across the nation.

17 So I guess my point here is that, I think
18 that the two issues really need to be considered
19 separately because when the Agreement States adopt
20 compatible provisions, they'll need to apply those
21 provisions on a case by case basis to their existing
22 sites.

23 So my sense would be, is to retain the
24 provisions in 61, but modify the provisions of 61.13
25 to make it clear that it's case by case. And the

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1 Agreement States implement to their regulations using
2 compatible requirements.

3 I appreciate the opportunity to comment.

4 MR. CAMERON: Okay. Thanks. Thanks
5 Paul. I think that is helpful. And nice to hear you.

6 And we have Larry Camper.

7 MR. CAMPER: Hey, Paul, Larry Camper.
8 Great to hear you.

9 MR. LOHAUS: Thank you.

10 MR. CAMPER: Hope you're doing well.

11 MR. LOHAUS: I appreciate the opportunity
12 to listen in and participate very much.

13 MR. CAMPER: It's great, Paul. Good to
14 hear your voice and wish you the very best. And golly
15 knows, you know a lot about this going way back. So
16 thank you.

17 You know, two points. One is on the
18 compatibility issue, the Commission in this case
19 specified in its SRM that it would be a Compatibility
20 B.

21 And when the Commission did that, we did
22 raise the sensitivity around the Compatibility B issue,
23 including the fact that the period of compliance, i.e.,
24 1,000 years is different then, and even less then, what
25 is currently in place within the existing sites.

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1 Although one site is moving toward a higher period.

2 But it's less than in the existing sites.

3 The Commission, my impression was, the Commission was
4 striving for consistency across the board. And for a
5 period of compliance to be the same everywhere.

6 Therefore, however, what the Commission
7 also did in its infinite wisdom, was to direct the staff
8 to specifically seek comments on this point. Which is
9 why we are specifically laying it out.

10 On the other issue, your point is quite
11 well made. And it's quite consistent with the language
12 in 61.1(a). And you are right. It was addressed on
13 a case by case basis.

14 Of course all the States chose to adopt
15 Part 61 by 1988. Almost in whole clause as I said. But
16 for example, Utah opted not to go with 61.58.

17 I guess the logic if one carried that
18 forward, South Carolina in its comment could say, we
19 prefer to see the same flexibility if you will, that
20 was embodied in 61.1(a) and in fact still is in the
21 proposed language. And therefore they might choose to
22 exclude the requirement in 61.13 that Susan Jenkins
23 cited earlier.

24 And the State could make its case in its
25 comment as to why it believes that licensees with

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1 licenses for land disposal facilities in effect on the
2 effective date of this subpart, should do certain
3 things.

4 So, I think that flexibility point is a
5 very challenging issue. And I think South Carolina
6 should comment accordingly.

7 But thanks, Paul. Very good.

8 MR. LOHAUS: Okay. Thank you much.

9 MR. CAMERON: Okay. Arlene, is that -- do
10 you have anybody else on the line?

11 OPERATOR: Yes sir. We have one question
12 from Ralph Andersen. Mr. Andersen, your line is open.

13 MR. ANDERSEN: Thank you very much. And
14 again, like others I very much appreciate the NRC
15 putting this meeting and series of meetings together
16 on the proposed Rule.

17 I've already learned a lot so far in the
18 meeting. And I'm looking forward to the rest of it.
19 I had a question regarding the scope of comments.

20 There was an earlier discussion about the
21 efficacy of the possible future rulemaking or
22 addressing depleted uranium or other issues.

23 As a part of the comments on this Rule, I
24 can imagine that our views on what might occur beyond
25 this Rule, i.e., updating of the waste classification

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1 tables, will provide some context for the comments that
2 we make.

3 So my question is this, within the scope
4 of comments that you're seeking and that you intend to
5 address, would it be appropriate to include comments
6 that link the comments we make on this rule to our ideas
7 about a potential updating of waste classification
8 tables in the future or specifically addressing the
9 issue of depleted uranium or those other issues?

10 Or really, would you see those kinds of
11 comments as out of scope for what you're trying to deal
12 with right now?

13 MR. CAMERON: Larry?

14 MR. CAMPER: No, I don't think it would be
15 out of scope. And the reason in particular, and I go
16 back and look at the commission assignment to the staff
17 and the SRM, although we have focused a lot upon
18 depleted uranium, there was more to it than that.

19 It said in a future budget request the
20 staff should propose the necessary resources for a
21 comprehensive revision to the risk informed, the Part
22 61 waste classification framework. With conforming
23 changes to the regulations as needed, using updated
24 assumptions and referencing the latest ICRP
25 methodology.

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1 This method should explicitly address the
2 waste classification of depleted uranium. So, I think
3 Ralph, with that charge from the Commission, the kind
4 of comment that you're alluding to would be entirely
5 appropriate.

6 MR. CAMERON: Okay. Good. Thank you,
7 Ralph.

8 Arlene, anybody else?

9 OPERATOR: At this time sir, there are no
10 further questions in the queue.

11 MR. CAMERON: Okay. Great. We're going
12 to go to David Esh to kick off the first technical issue.
13 David?

14 MR. ESH: Thank you. If I look at the
15 clock and the agenda, I think we'll have roughly 25
16 minutes per topic. Now, I'm sure I can't speak for the
17 others, I'd be happy to say here as long as you want
18 to talk about things.

19 So, but keep that in mind as we go through
20 each one. And we're certainly not going to filibuster
21 any of these topics. We're going to give you a brief
22 introduction.

23 We recognize you all probably have more
24 than adequate reading proficiency skills. So, the --
25 we'll give you an introduction and then we'll get right

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1 to the discussion.

2 The first topic we're going to talk about
3 -- well, let's go to the overview slide and I'll go
4 through the topics we're going to cover.

5 So the Rule topics that we pulled out that
6 we felt were ones we wanted to get some input on and
7 probably were of interest to the stakeholders, are
8 provided here. Analysis time frames. Performance
9 assessment, intruder assessment.

10 The two other analysis periods. A
11 protective assurance period and the performance
12 period. Then the safety case defense in depth topic.
13 Waste acceptance criteria and other.

14 Which, as John Tauxe has already indicated
15 in one of his comments, he might have some thoughts on
16 the other box. That's perfectly fine. You know, what
17 we can and do with other comments depends on how it
18 meshes in with the material that we did change in the
19 Rule.

20 Because as Larry indicated, this was
21 supposed to be a limited scope rulemaking. You always
22 seem to get some scope creep with these sorts of things.

23 When it started, I looked at the problem
24 and I thought, well gee, you know, I can probably change
25 a few sentences and get this ready in a couple of weeks.

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1 And now, here we sit, you know, five years later and
2 millions of sentences and thus.

3 So, yes, right. So, we also as
4 acknowledged, developed a guidance document to go with
5 it. It's this document here. The comment period is
6 the same. It's roughly 450 pages. You have 90 days
7 left. So, five pages a day will get you there.

8 Okay, so let's go to the next slide please.
9 The context for analysis, this is a good figure that
10 Chris Grossman put together, which as things changed
11 in the Rule, there's at least the perception that it's
12 very complicated.

13 But I don't think it's as complicated as
14 the perception. This figure in my mind helped clarify
15 that. What you're basically dealing with is some
16 different requirements and different time frames. And
17 how they interrelate or overlap.

18 So on the left hand you have the three
19 different time periods. And for what the -- which of
20 the Subpart C performance objectives they apply to over
21 what time. At the top you have the assessment context
22 and scenario development.

23 That applies to your overall analysis for
24 the whole problem. Whether you're talking performance
25 assessment or some other type of analysis. How do you

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1 get your scope right and ensure you've evaluated the
2 problem correctly.

3 And then we have this new requirement that
4 was added in, in the most SRM about applying --
5 recognizing defense in depth more explicitly for low
6 level waste performance, low level waste disposal
7 facilities.

8 So, this figure, it helped me understand
9 how things are fitting together. I hope it helps you.
10 I also want to recognize all the people that have worked
11 on this. It's not just Chris and myself.

12 We've had many other people, Priya Yadav,
13 our Project Manager in Lower Level Waste Branch.
14 Andrew Carrera, who doesn't work on it anymore. He
15 worked with Gary.

16 Mike Lee was a Project Manager at one point
17 in Low Level Waste. Lisa London and various other
18 people from OGC have worked on it. We had a working
19 group that met almost weekly for many years that we
20 would talk about these various things.

21 And that's the one other point too is, many
22 of you have made comments in the past. We do read all
23 those comments. We discuss them.

24 We may not agree with you. So, you may
25 have made a comment and you see, well that didn't

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1 change. We hope we have a good answer for that.

2 So, feel free to remake those comments that
3 you don't feel like you've received an adequate change
4 or response to. And hopefully you will receive one in
5 the future.

6 Okay. So that's all the introduction that
7 we need. And let's go to the first topic now.
8 Analysis time frames.

9 This is a very complex issue in some ways.
10 In other ways, not. It is a topic that we've had
11 extensive stakeholder on and extensive discussion. We
12 developed a white paper to try to come up with, well
13 what do we need to do with this?

14 And then we got some direction from the
15 Commission that changed our initial recommendation in
16 SRM-SECY-13-0075. And we do really want to seek
17 stakeholder input, especially on the compatibility
18 designation as Larry Camper indicated earlier.

19 Okay, next slide please. So this figure
20 shows, and maybe it doesn't matter where we were and
21 where we are. Maybe we only need to talk about where
22 we are. But it shows where we were and where we are
23 in terms of the analysis time frames.

24 At the bottom it provides the two
25 performance objective -- main performance objectives

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1 that the analysis time frames are applying to. 61.41
2 for protection of the general population. And then
3 61.42 for protection of the inadvertent intruder.

4 So as you go up, the green area on the right
5 side is the compliance period. Which it's going to --
6 it's the same as existing in current Part 61, outside
7 of the fact that you're going to be using new ICRP
8 methodologies to do your dose assessment.

9 But otherwise, it still has a 25 millirem
10 dose limit. And the ALARA as low as reasonably
11 achievable concept is applied to it.

12 What's different for 61.42 is now you --
13 in the current regulation -- this was the only change
14 that you really needed to do in this whole rulemaking
15 when you looked at different waste streams.

16 It was to add in a requirement to do an
17 analysis for a different waste stream for the intruder
18 under 61.42. Because 61.42 was done for particular
19 isotopes. So if you had isotopes that weren't in the
20 list, how do you know whether that isotope is suitable
21 for your facility or not?

22 61.42 in the regulation as it is currently
23 written, not as proposed, does not require an intruder
24 analysis. It only requires you to meet the waste
25 classification tables and some other requirements to

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1 show that you can accept it.

2 So that was the only change that was
3 needed. Now in 61.42, as Chris is going to talk about
4 under the intruder assessment, you're required to do
5 an intruder analysis and what we are proposing a 500
6 millirem dose limit for that analysis.

7 The same dose limit that was used in the
8 original Part 61 when the 61.41 -- or 61.42 requirements
9 were developed. Followed by the compliance period
10 which would extend out to a period of 1,000 years as
11 a protective assurance period.

12 And this is a little different and it's new
13 in this proposed package. Basically, this is proposed
14 as an optimization type approach, where the target is
15 to minimize.

16 And there's some language about that in
17 both the regulation and especially in the guidance
18 document. The way that we have chosen to recommend you
19 implement it in the guidance document, is to use risk
20 based discounting for the protective assurance period.

21 Or really the inverse of risk based
22 discounting. So, if your risk is low, your analysis
23 requirements are low. If your risk is high, your
24 analysis requirements are high.

25 That's the general, conceptual approach

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1 that we chose to apply to this protective assurance
2 period that you'll see, it extends from 1,000 years to
3 10,000 years.

4 And then similar to what we had originally
5 proposed, the Commission didn't redirect us on this.
6 The performance period occurs starting at 10,000 years
7 out to whatever time is appropriate for your site.

8 It's only applicable if you have
9 sufficient amount of waste in your site to cause you
10 to need to do that type of analysis. So we came up with,
11 there's a table in the regulations, Table A I believe,
12 that has the recommended concentrations for when you
13 -- that anal -- the requirement for that analysis would
14 be triggered.

15 Those concentrations are basically the
16 Class A waste concentrations, but on a facility average
17 basis. So if you fill your whole facility with Class
18 A waste, you would trigger the need to do that
19 performance period analysis. If you're below that,
20 you wouldn't need to do that performance period
21 analysis.

22 So conceptually, that's how our proposed
23 analysis time frames are working with the two main
24 performance objectives. So a little bit more
25 background. Next slide please.

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1 And this is -- this figure I recognized
2 this morning is incorrect. The depleted uranium curve
3 is increasing too much. I believe that's because it's
4 not the total activity ratio.

5 It subtracted out the uranium activity.
6 This is more intended to show the increase in the
7 daughter radionuclides, which are the risk drivers in
8 the uranium chain in most cases.

9 Uranium itself can cause risk too. But
10 it's the radium 210 and the radon that really gets you
11 significantly. But that -- there's an error in that
12 figure and I was not able to correct it because my
13 computer it's on is having a Lois Learner moment at the
14 time, so.

15 But the concept of that is correct. That
16 basically the activity for depleted uranium increases
17 because it's essentially cleaned of the daughter
18 products. And they build in over time, albeit very
19 slowly.

20 And for traditional low level waste, the
21 activity is dominated by the short lived isotopes such
22 as the cobalt 60 and some other species at the early
23 times. But they decay quite rapidly on these time
24 frames. And so then your risk is reduced to what
25 residual long lived waste you may have disposed of in

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1 your facility.

2 So conceptually this caused a challenge
3 for the analysis time frames because traditional low
4 level waste and maybe the depleted uranium are somewhat
5 divergent in their radiological behavior. Next slide
6 please.

7 The analysis time frames. This is a
8 figure we put together just to talk about uncertainty.
9 Because we said, well we need to consider uncertainty
10 in this.

11 And this is just a hand drawn figure with
12 some various things to consider. But, we thought it
13 gave the context for types of things you might want to
14 consider when talking about analysis time frames.

15 And the biggest challenge for me is not
16 necessarily the red curve or the blue curve. But it's
17 the green curve. So the green one is the technology
18 scenario as an activity.

19 I think the uncertainty associated with
20 that can become really enormous and increase rapidly,
21 especially on the hundreds, to many hundreds of year
22 time frame. You're talking about cities coming and
23 going and that sort of thing.

24 It's very difficult to predict. So if
25 you're going to go with an analysis based approach or

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1 a strong analysis informed approach to show safety for
2 low level waste disposal, then you have to tread
3 cautiously in this area.

4 And that's what we've attempted to do in
5 the requirements that we're proposing. Okay. Next
6 slide please.

7 So for analysis time frames, these are some
8 definitions directly out of the regulation. I'm not
9 going to read them. But we have a definition for long
10 lived waste, compliance period, protective assurance
11 period and performance period.

12 Those are the things that define when you
13 might need to do the performance period analysis. And
14 then what are the basically, points and space that you
15 need to use for the other periods.

16 And as Larry indicated right now, that's
17 in the proposed. It's going forward with
18 Compatibility B. So everybody would be using the same
19 numbers. Okay, next slide.

20 So what we're going to ask your feedback
21 on is kind of the overall approach. This tiered
22 approach with these various requirements. Certainly
23 in the compatibility or long lived waste definition.

24 And then also this Table A, both
25 conceptually and the value. So, is it, you know, in

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1 the right ballpark? How we set that up with the Class
2 A concentrations on a facility average basis.

3 By our analysis that was not going to
4 require any of the existing facilities to need to do
5 the performance period analysis. But it would if you
6 took large quantities of depleted uranium require you
7 do to the performance period analysis.

8 And so that's what we were intending. If
9 you're taking something that has long lived persistent
10 risks in and a large amount of it, then it should trigger
11 some sort of an evaluation.

12 So that's where I'll stop and then I can
13 go through the discussion.

14 MR. CAMERON: Okay. Thanks Dave. Let's
15 follow the seeking feedback on topics and go through
16 those and try to connect up thoughts.

17 But, how about comments on panel?
18 Comments on overall approach. And we'll go overall
19 approach and then we'll go onto the next one.

20 Anybody have anything on overall approach?
21 I think Dan does. Dan?

22 MR. SHRUM: Overall approach, slide
23 three, can we go to slide three? Which it shows the
24 context for analysis.

25 The -- as somebody again, I'm going to view

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1 this as somebody who has to implement this. The
2 protective assurance period shows a stability analysis
3 from 1,000 to 10,000 years. That's why that box is
4 there, correct?

5 MR. ESH: Right. Correct.

6 MR. SHRUM: And I'm -- just to be clear,
7 I'm not, you know, this isn't just the facilities that
8 we operate. This is for any facility. Reasonably
9 foreseeable, 1,000 to 10,000 years for stability.

10 And that includes analysis of concrete.
11 That includes analysis of rebar. That includes -- all
12 of those things are supposed to be included, correct?

13 MR. ESH: Right.

14 MR. SHRUM: Is that you're -- the way you
15 would view that?

16 MR. ESH: Yes. We intended for that
17 stability analysis to extend to the 10,000 time frame
18 for all facilities basically, so.

19 MR. SHRUM: Okay. Would you in the
20 concepts in 61.7, it talks about a 500 year time frame,
21 at least a 500 year time frame. Put those together for
22 me now.

23 So now I'm supposed to be looking from 1
24 to 10,000 or a minimum of 500, which, you know, I guess
25 1 to 10,000 is a minimum of 500. But it really, I was

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1 thinking more reasonably foreseeable is the 500 to
2 1,000.

3 MR. ESH: Right.

4 MR. SHRUM: We're pretty good at that.

5 MR. ESH: Yes.

6 MR. SHRUM: And as your chart shows, it
7 really, you know, and that's a potential of we lose
8 sight of how things react in the 1,000 to 10,000 year
9 time frame.

10 MR. ESH: Yes, what we -- the -- you're
11 right then, it does reference 500 years in the concept
12 section. The concept section number 1, is not
13 requirements, but it's basically describing some --
14 giving some narrative about the various aspects of the
15 rule and how they may fit together.

16 So, keep that in mind when you read
17 something in the concepts. However, the concepts
18 should not be in conflict with the requirements. And
19 I don't think they are.

20 Because in this case, this is the -- I think
21 the 500 years you're referring to is with respect to
22 the site characteristics, or evaluating the site
23 characteristics. So that's kind of saying, what are
24 my processes that may disrupt my site?

25 I'm going to look out for some period of

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1 time and say, what are the types of things I have going
2 on that might cause deterioration, degradation,
3 release, instability of my system?

4 Once you ana -- once you develop what the
5 set of features, events and processes that you may need
6 to consider, that doesn't mean that you shouldn't
7 extend the effects of those to some longer time and see
8 what the effect of those process may be. Features,
9 events or processes may be.

10 So, understand that that 500 years is
11 talking about how do I get my set of events or my scope
12 of the analysis right? But the time that you analyze
13 for may be different then what you're -- what the period
14 of time that you use to set the scope for that analysis.

15 MR. SHRUM: And you believe that you can
16 do an effective analysis on the strength of materials
17 from 1 to 10,000 years?

18 MR. ESH: Well, as with anything in Part
19 61, this is a risk informed performance based
20 implementation. Are you relying on the strength of
21 those materials for your analysis?

22 If you are and they help you reduce risk
23 from your materials, then you better be able to provide
24 a basis for what they're doing.

25 MR. SHRUM: Okay.

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1 MR. ESH: If you're not relying on those
2 materials, then certainly, you know, this and the other
3 requirements, especially with the longer time frames,
4 it's not a matter of I have to provide scientific proof
5 of all these elements. But you have to be able to make
6 an informed regulatory decision that supports your
7 case.

8 Those may be two dramatically different
9 things. So making a regulatory safety case is
10 different then doing computer model validation. They
11 may diverge.

12 But you as a licensee or in consult with
13 your State Regulators, you need to go through your
14 process and decide, you know, how do you want to spend
15 your money. And what can you defend and what can't you
16 defend.

17 And you rely on the things that you can
18 defend. And you don't rely on the things you can't
19 defend. So that's -- conceptually that's how we intend
20 for it to work.

21 MR. SHRUM: And conceptually, it's -- I
22 have no problems running the model. But the model
23 needs inputs and the inputs -- those inputs will be
24 challenging for all of the facilities.

25 I was surprised, personally was surprised

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1 to see that box.

2 MR. ESH: Right. Yes, and I kind of --

3 MR. SHRUM: Because it would have -- or it
4 should have been a shaded box. Or --

5 MR. ESH: Well, understand, the whole --
6 one of the main reasons why the original Part 61 was
7 developed was because of stability issues at some of
8 the sites prior to Part 61.

9 So, NRC came in and said look we need to
10 deal with some of these stability issues. Let's put
11 a regulation in place that's going to provide the
12 requirements so we can avoid those.

13 If you're disposing of traditional low
14 level waste where most of the risk or a lot of the risk,
15 at least the short lived risk, is gone and the -- or
16 greatly -- I shouldn't say gone, greatly decreased in
17 say a 500 to 1,000 year time frame, well then, I would
18 think a stability analysis that looks at the 500 year
19 to 1,000 time frame is appropriate.

20 If you're going to take low level waste now
21 that potentially has a long lived component and large
22 quantities of it, I don't see where we would come out
23 in a different position of that you shouldn't be able
24 to demonstrate stability of that material.

25 Because the whole waste disposal scheme,

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1 say putting high level waste deeply, is related to this
2 stability issue. And how long you can justify
3 stability of the material.

4 And that's -- that's reflected already in
5 NRC's waste classification system with A being able to
6 be disposed of more shallowly. And with different
7 requirements then C waste which has more stringent
8 requirements.

9 MR. CAMERON: Okay.

10 MR. SHRUM: Thank you.

11 MR. ESH: Yes.

12 MR. CAMERON: Let's go to John and then
13 we'll go over to Tom, okay. John?

14 MR. TAUXE: Okay. Yes, a bunch of issues
15 were brought up there. I also was confused by the 500
16 year -- the indication of 500 years there.

17 And it's in 61.72, in the concepts. But
18 it's also in 61.50, in a couple of places there, (a)(2)
19 and (3).

20 And so, I was confused by that. And
21 looking back at the comments that Neptune made in 2013.
22 By the way, if anybody's interested, there's some
23 copies over by the door there. We submitted 27 pages
24 of comments then too.

25 And I was confused then and I'm still

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1 confused about the 500 year thing. But, you mentioned
2 your -- the idea of evaluating the concentrations of
3 your waste to the amount of waste at different time
4 frames in the future.

5 And I'm seeing that here in the guidance
6 on -- under site characteristics, page 225. You had
7 these little equations if the concentration is less
8 than a 10th or something, then evaluate for 500 years.
9 And there's the 500 year thing again, which doesn't
10 appear on this diagram.

11 So, somehow it's being introduced but not
12 -- it doesn't appear on this diagram. So it's yet
13 another sort of time line that's in there. So that's
14 a little confusing.

15 But I do -- I do get this bit about, it seems
16 to me what one would do in practice is to take your waste
17 inventory and decay it into the distant future. And
18 see where problems are likely to occur, either, you
19 know, in what time frame.

20 Am I thinking of that right when I see the
21 little, you know, the A, B, C parts of this equation
22 here with looking at different time frames and when it
23 looks like waste is going to appear to be a problem?

24 MR. ESH: Right. Okay. And to -- I mean,
25 a little bit of just context on the 500 years. So you

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1 understand better when you make your comments.

2 Is, yes, that 500 years comes up in 61.7
3 concepts. It's carried forward into the guidance
4 document. It's in a couple of different areas. It was
5 originally there with respect to the site
6 characteristics.

7 So how do you evaluate a new site and say,
8 is this site suitable for low level waste? At 500 years
9 was there at least a fuzzy line in the sand if you maybe
10 want to say it's black and white or fuzzy, whatever.

11 But some sort of line in the sand about
12 evaluating the characteristics of your site. And
13 determining whether that site is suitable to take this
14 material or not.

15 That 500 years we haven't changed and
16 carried forward. I think we did add some additional
17 language to it to kind of provide a little bit more
18 flexibility. It's not a magic number.

19 You know, in reality, you should just say
20 something like evaluate your site characteristics that
21 you need to, commensurate with the waste that you're
22 proposing to dispose of. Or something like that.
23 That then you can do what's right for the material
24 you're trying to dispose of instead of some other number
25 that leads to maybe misinterpretation.

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1 But, so the -- but if you look at the
2 revisions to 61.50, we tried to be faithful both to that
3 number. But then changed based on what we're doing in
4 the new regulation.

5 So, there were some siting characteristics
6 that were intended to be exclusionary. So, you don't
7 put waste in 100 year flood plain. Or don't put waste
8 in a zone water table fluctuation.

9 I don't know, there was a number of the
10 criteria, some that were exclusionary and then some
11 that were more performance based. They basically
12 said, if you can't meet the performance objectives
13 because your site has these characteristics, then you
14 probably shouldn't put your material there.

15 That's a, you know, a little bit circular.
16 You have to enter the circle at some point to make that
17 argument and exit out.

18 But, so we changed that so that if you were
19 disposing of large quantities of long lived waste,
20 there's still a set of requirements, especially the
21 hydrological ones that are exclusionary for a certain
22 time frame. Basically that's 500 years.

23 Because the idea is, I don't care, you
24 know, John, you may be the best modeler in the world,
25 but if you have a site that has flooding at it now and

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1 water table fluctuation. And all these other things
2 going on, what's the likelihood that you can get that
3 risk assessment right with all those things going on?

4 Probably not good. So, that's the idea
5 is, there's certain things that hey, if you're in the
6 ballpark, you should probably look for a different
7 site.

8 Past that point then, then it becomes a
9 more site specific evaluation of whether those specific
10 characteristics could cause you problems. So,
11 conceptually with the changes to the time frames and
12 then the associated changes to 61.50, that's where we
13 were headed.

14 MR. CAMERON: Okay. Let's --

15 MR. GROSSMAN: Chip, if I could jump in
16 here. I'm sorry to interrupt. But just for a little
17 background for the panel and maybe for the public as
18 well.

19 I don't know if we've ever explained this
20 all that well. But our understanding of the history
21 is that the 500 years comes from the initial analysis
22 that was done in EIS.

23 And so the waste classification system,
24 essentially the concen -- if you dispose of those
25 concentrations after 500 years, your risk would be

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1 small enough that protection would be ensured.

2 And so, the idea was that these sites
3 should be evaluated for that time frame. Because after
4 500 years, then if you use the classification system,
5 your risk would be low enough that protection would be
6 ensured.

7 That's kind of where that came from
8 historically.

9 MR. CAMERON: Right. Okay, thank you.
10 Thank's Chris. Let's hear from Tom Magette and John
11 Greeves. And then let's go onto compatibility. Tom?

12 MR. MAGETTE: Thank you Chip. First a
13 general comment then a couple of questions. In general
14 the time frame analysis that you've proposed, I think
15 is reasonable.

16 It might not be what I would come up with
17 if I went to the board and started scratching around.
18 But I think it's good.

19 I think 1,000 years is a good compliance
20 period. I think it should be a high compatibility. It
21 should be required of all the States. I think it's
22 reasonable.

23 The new concept of a performance assurance
24 period, I think is also reasonable. There's still --
25 I still have some questions about exactly how we're

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1 going to implement that that I want to probe with you
2 a little bit. And then the performance period I think
3 is reasonable as well.

4 So, in general, I think you have a good
5 construct to the Rule there. And I appreciate that.

6 As to the discussion about stability, I was
7 going to say the same thing you just said Chris,
8 basically. Which is the 500 was a requirement based
9 on essentially a bad calculation of, you know,
10 assumptions made about the waste that would be disposed
11 as it was analyzed. And where to build the
12 concentration classification tables.

13 And that seems to be different from, if I
14 understand what you just said, David, what you're
15 intending to apply for the performance analysis period.
16 Which is more of a -- it's not an exclusion criterion.

17 It is a component of your analysis that
18 says, if you're relying on the stability of this waste
19 to demonstrate that you meet the performance objectives
20 in 61.42(b), then you have to take credit for it and
21 you have to justify it. That would be my rephrasing
22 of what you said and what I understood that you said.

23 MR. ESH: Right, and let me just clarify.
24 There's two components. So you have intra-stability
25 and inter-stability.

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1 So you have things external, exogenous
2 influences that can influence the stability of your
3 disposal system. Then you have things internal to it.

4 So this is -- the analysis is supposed to
5 take into account those external things which may
6 extend out through longer time frames. And could
7 potentially be exclusionary.

8 If those external things would not allow
9 you to meet the performance objectives, then you're
10 probably trying to put the wrong material in the wrong
11 site. Whereas the intra-waste stability, I think that
12 -- well, especially your description is spot on for
13 that.

14 As Chris indicated, it was intended to work
15 with the waste classification system to ensure that you
16 don't create instability within your disposal system
17 itself that's going to cause a challenge to the
18 performance objectives. So, yes.

19 MR. MAGETTE: Okay, so based on that, then
20 when I look at 61.13(e), there's a new phrase inserted
21 in there -- (d), excuse me. It's all the same except
22 for this phrase that's inserted. The long term
23 stability of the disposal site can be ensured.

24 So I guess my -- it seems like that is
25 inconsistent with what you just said. Maybe ensured

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1 is not the right word there that you want. It needs
2 to be taken into account.

3 But it doesn't become a new 10,000 year
4 stability requirement.

5 MR. ESH: Yes. I understand the comment.
6 We'll look at it.

7 MR. MAGETTE: Okay.

8 MR. CAMERON: Okay. So you got that
9 David. All right.

10 MR. MAGETTE: One more question. Just in
11 general, the 61.13(e), the Table A for the --
12 essentially like a threshold for when a long lived waste
13 analysis is required.

14 Is there a technical basis for that? How
15 did you come up with that? Essentially the 10 percent
16 of the long lived isotopes in 61.55?

17 MR. ESH: Right. So, the way we came up
18 with that is we wanted to say, as Larry had indicated
19 in his opening remarks, are existing facilities
20 operating with respect to long lived waste disposal?
21 Because they all have some long lived waste in them of
22 various amounts and various isotopes.

23 And are they operating appropriately with
24 respect to that? And the general answer we came up with
25 was yes. You know, there's tweaks and changes you

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1 could always make to analyses and evaluations. But the
2 general answer was yes.

3 And so, we said well, if we put a
4 performance period requirement -- if we want to put a
5 performance period requirement in place to deal with
6 long lived waste, we don't want a facility just because
7 it has a few atoms of some long lived isotopes to do
8 this analysis. That doesn't make any sense.

9 We want to make sure if you're doing
10 something that could have a long term -- larger and long
11 term risk associated with it that it would capture
12 those. But it wouldn't capture everything.

13 And so, anyway the short answer is then,
14 we looked at existing facilities. We looked at
15 conceptually what the problem we were trying to handle.

16 And then the Class A values on a facility
17 average basis was a line drawn that would put the
18 existing facilities if they were operating with
19 traditional waste in the lower part of the diagram.
20 And only if you were in say, a kind of a new paradigm
21 or new waste stream, such as the large quantities of
22 depleted uranium, it would be kicking you into the
23 performance period requirement.

24 So, that's the, you know, verbal summary
25 of how we came up with that.

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1 MR. CAMERON: Okay. I think we need to
2 keep moving. And let's take one last comment on this
3 issue from John Greeves.

4 And then I want to give Charles an
5 opportunity to open up the compatibility, if you have
6 anything to say on that. John?

7 MR. GREEVES: Yes. Just, the opening
8 remarks were about perception with complexity. Well,
9 I'm one of those that perceive it as being complex.

10 I look at the slides you show, your third
11 slide with a nine box diagram. Your fifth one with many
12 boxes. The seventh one with multi-colored lines. And
13 the eighth one with a lot of text.

14 I sat through briefings of Paul Lohaus and
15 Katie Dragonette years ago explaining Part 61. And it
16 was never this level of detail. Like I subscribe to
17 a simple rule, adequate protection, clear,
18 implementable.

19 And this level of complexibility gives me
20 pause in terms of implementation. Just, you know, the
21 overall approach, which was the original question, you
22 have proposed a three tiered system, which leads to some
23 of this complexity.

24 I prefer a two tiered approach. In your
25 slide six, if you can put it up there. Again, I'm

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1 trying to come from a, how can I implement? What's a
2 rule that's clear and simple? And if you look at your
3 slide six, it shows the problem.

4 The problem is we have an early time frame.
5 A lot of low level waste. High activity that decays
6 after about 1,000 years.

7 So if you have a two tier system that
8 reaches out to -- by the way, I subscribe to the 1,000
9 year metric for a period of compliance or time of
10 compliance.

11 A one tiered system accounts for that,
12 captures that. If you have a second tier that takes
13 care of all the rest and require a site specific
14 analysis, to me that's a simple two tier approach which
15 at one point the then Commission subscribed to.

16 You got guidance to look at three tier at
17 a later point in time. But, hey, it's evolving. So
18 that's my point. I think the complexity that's in the
19 proposed Rule, I wish it wasn't there.

20 And just as a comment, I think a lot of the
21 material that's added is to me how to, as opposed to
22 criteria. And I'd prefer to see a Rule that takes a
23 lot of the how to and use it in the guidance which I
24 think is where it is, so.

25 MR. CAMERON: Okay. That's -- John,

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1 that's great. Larry wants to respond.

2 MR. CAMPER: I have two comments. First,
3 sometimes when you're walking around the jungle, it's
4 good to fly over in a helicopter. You see more.

5 I think what -- I think what your comments
6 about the complexity of this, we greatly appreciate
7 those. We do understand those. And when I say fly
8 over, what I mean is this.

9 Remember that the Commission initially
10 directed the staff to use a two tiered approach. The
11 Commission subsequently directed the staff to use a
12 three tiered approach. We've attempted to address
13 that concern.

14 Why did the Commission do that? I would
15 never pretend to speak for the Commission. I can only
16 share with you discussions that I had with each
17 Commissioner and their staff and give some impression.

18 I think to a large degree the three tiered
19 approach grew out of concerns about this thing called
20 depleted uranium. It is complex. It behaves
21 differently.

22 And I believe the Commission and some of
23 their staff may have in fact been influenced by some
24 of the same concerns that the staff had when we were
25 working on a proposed Rule that contained a 20,000 year

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1 period of compliance. I think we all know and
2 understand the ingrowth of the daughter products on
3 depleted uranium.

4 When it commences 8,000 years or so, when
5 it peaks, it is a most unique thing. And I think that
6 has led to the Commission's interest in a three tiered
7 approach. And I think it's lead to some of the
8 complexities that we see being talked about around this
9 table.

10 Now having said that, I do think it's
11 important for members of the public again to
12 understand, we have a site in the United States today,
13 all these sites have disposed of depleted uranium
14 safely.

15 And we have one site in particular, an
16 extremely arid site in the great State of Texas, that
17 has given authorization to its operator to dispose of
18 a large quantity of depleted uranium based upon a
19 performance assessment.

20 Now, why does that work? It works because
21 where I alluded to in some of my comments, one must
22 understand that the operations for disposal today in
23 these United States is remarkably different then it was
24 envisioned in and articulated in the environmental
25 impact statement leading to Part 61.

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1 I mean, the levels of conservatism and the
2 kinds of things that are done, for example, at that site
3 in Texas, is remarkably different then what was
4 articulated in the EIS. Which served as the regulatory
5 basis for the Rule.

6 So, John and others, I think that's why we
7 have the three tiered approach. And I think that's why
8 it's so complex.

9 MR. CAMERON: Okay. Thank you. And just
10 before we go to Charles, I just want to note that if
11 we had a whole lot more time, okay, we could ventilate
12 these issues more thoroughly. But the value of this,
13 it really tees up potential comment areas.

14 It clarifies information. And in terms of
15 teeing it up, it not only tees it up for the people here
16 in the audience today. But also for the people who are
17 going to be attending the meetings in Austin, Columbia,
18 whatever. So it's a value.

19 Charles, on Compatibility?

20 MR. MAGUIRE: Yes sir. And that can be
21 brief. We're supportive of the time frames. We think
22 Compatibility B is probably important in terms of the
23 consistency issues that you might have to deal with.

24 We faced early on, probably mostly because
25 of Carbon 14, the need to look at what sort of dose would

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1 occur to the public from the disposal of the inventory
2 at the WCS site. We also then got the opportunity to
3 look at depleted uranium, large quantities of depleted
4 uranium coming to the site.

5 I think, I've been involved -- I've been
6 involved with regulation from the private sector side
7 and then nine years with the Commission. The -- I find
8 myself saying to people all the time, we used to be able
9 to smoke in the building.

10 Things change and regulatory -- regulatory
11 frameworks have to change with that. And so, any
12 advent of disposal of depleted uranium, any advent of
13 disposal of other long life radioactive material is
14 going to have to have a regulatory framework that will
15 allow us to assure the public that it's safe, that it's
16 appropriate.

17 And that it's safe and appropriate over
18 extremely long time frames. And so I like this
19 approach. It's served us well in the things we've had
20 to deal with.

21 MR. CAMERON: Thanks, Charles. Anybody
22 else on compatibility? John?

23 MR. TAUXE: Yes, I do want to address that.
24 I also, maybe we can come back to it. I just had a
25 couple of quick comments. One on stability and the

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1 other one escapes me at the moment.

2 But compatibility I think is important to
3 have consistency across the States. And I've worked
4 on a lot of them and seen a lot of inconsistencies that
5 sort of bother me. Maybe it's part of my OCD in nature.

6 But, it seems only fair that there should
7 be compatibility and consistency across the States. I
8 remember when I first looked at the Utah regulations
9 when I was first invited to work on depleted uranium
10 at Utah. I was surprised to see that the State only
11 required analysis to go out 500 years. And that was
12 it, despite all sorts of interesting radionuclides
13 being disposed.

14 So, and -- oh, the other one was on overall
15 approach. I think it's -- I'll just say it now quickly.
16 The overall approach I think is great. The three
17 tiered approach is fine.

18 That level of complexity I have no problem
19 in implementing. My problems are in terms of clarity
20 of language and things like that. That's what causes
21 implementation problems for me.

22 MR. CAMERON: Okay. And if you have
23 anything else, we'll circle back to that. But, let's
24 go to the definition of long lived waste. Is that the
25 topic? Long lived waste definition is the third

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1 bullet.

2 And we will be going to the phones Arlene
3 as soon as we're done with this. Okay.

4 OPERATOR: Okay.

5 MR. CAMERON: Okay. Thanks Arlene.
6 Anybody on long lived definition? Do you understand
7 what the subject is? John?

8 MR. TAUXE: Yes, I think I understand it.
9 Yes. And it comes into that equation I was pointing
10 out earlier of where the concentration is. Because
11 it's -- one clarity issue was there's a -- and actually
12 this did get clarified in this latest revision that
13 wasn't clear in the 2013 version.

14 Was about, are we talking radionuclides or
15 long lived waste, which is a big collection of
16 radionuclides. And that's a very important
17 distinction. And it seems to have been made clear here
18 that it's the collection of radionuclides.

19 It's the entire inventory and how we're
20 looking at that. I also want to respond to something
21 Larry said, that depleted uranium was unique in how it
22 has very high concentrations later.

23 The funny thing, in two million years from
24 now, I would say depleted uranium and spent nuclear fuel
25 look very similar. Once all the fission products are

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1 died away from the spent fuel, it looks -- it's got a
2 lot of U238 in it. It looks a lot like depleted
3 uranium. And they both look a lot like uranium mill
4 tailings look today.

5 So, in a way it's not so unique. All these
6 things are converging way out in deep time. And I guess
7 we're saving the Table A discussion for following this?

8 MR. CAMERON: That's the next topic.
9 Correct.

10 MR. TAUXE: Oh, okay.

11 MR. CAMERON: Anybody else on the
12 definition issue? Larry, do you want to say something?

13 MR. CAMPER: No, I -- I appreciate that
14 point John. I do want to make it clear for members of
15 the public though. We use a totally different
16 regulatory regime for disposal of spent nuclear fuel.
17 Not like low level waste.

18 MR. CAMERON: Okay. Are we ready for
19 Table A discussion? Or John, do you want to -- go ahead
20 John. Whatever you want to say.

21 MR. GREEVES: I'd like to start Table A,
22 but wrap it backwards towards the definition.

23 MR. CAMERON: Go ahead.

24 MR. GREEVES: The definition and Table A
25 work together. And I -- I'm not -- I'm having trouble

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1 understanding Table A. It's hard to penetrate.

2 So, my comment is, I would prefer to see
3 Table A and the definition to go in guidance. It's sort
4 of a how to. You know, you got to meet these
5 performance objectives.

6 But, don't tell me how to meet them in the
7 Rule. I think I like the concept in Table A. I can't
8 tell you I fully understand it. That's the problem if
9 I don't understand it, how am I going to implement it?

10 So, it's really a preference of taking
11 things like Table A and that long definition of long
12 life waste and have it be part of the how to in guidance
13 as opposed to being up in the Rule.

14 There's you know, show up and my concern
15 about, I have lots of good things to say about the Rule.
16 But the concern I have is implementation of a lot of
17 new language. And so, I'm going to stop right there.

18 MR. CAMERON: And John, just to put a finer
19 point on that, a question about why you think that the
20 how to should be in the guidance. Is it because it
21 gives more flexibility to the -- not only to the
22 licensee, license applicant, but also to the staff?
23 Can you just tell them that?

24 MR. GREEVES: Yes. It comes from my 30
25 plus years of experience either writing, implementing,

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1 observing, commenting on rules. And to me, the best
2 rules are -- provide adequate protections.

3 Larry said early, simple, understandable,
4 clear. It's the what? What's the criteria? And
5 then, to me, guidance is best used to do the how. Okay.
6 That's the clear criteria. Everybody understands it.
7 And how am I going to implement that? And to me, that's
8 best done in guidance.

9 I mean, the staff has done a very good job
10 under 31.16, which not everybody in the room knows what
11 that is. But it's, basically the tank analysis that
12 South Carolina and in Idaho. And the legislation says
13 use Part 61 performance objectives.

14 And the staff did a -- has done an admirable
15 job on that. Because it had clear criteria. And then
16 they wrote guidance which mirrors a lot of what's I
17 think in your guidance. So --

18 MR. CAMERON: Okay. And Larry, before
19 you go, I want to give you an opportunity to respond
20 to anything that Tom Magette said. Tom, do you want
21 to finish this off from the panel. And then we'll go
22 to Larry and then the phone. What is this challenge?

23 MR. MAGETTE: But I have a follow up.

24 MR. CAMERON: Oh, and Dave too. Okay,
25 let's hear from Tom and then we'll go to Larry and David

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1 and then we'll go to the phones. Tom?

2 MR. MAGETTE: I just have a question about
3 13(b), which contains Table A. Am I correct in viewing
4 this as almost, or maybe not almost, but maybe a
5 deminimis standard for whether or not a site contains
6 sufficient long lived waste to require specific
7 treatment under the third tier of the performance
8 analysis?

9 MR. ESH: Correct.

10 MR. MAGETTE: Okay. So that's what it
11 looks like to me. So, although I agree with John's
12 general comment about some of the prescriptive nature
13 of the Rule, which I think is better addressed on some
14 of the other topic areas.

15 This particular one to me seems more like
16 an actual requirement that could be useful to a site
17 that in fact falls below the limits in this Table. And
18 so that seems to make sense to me.

19 It goes to this notion of whether or not
20 a site has to -- well, the existing sites versus future
21 sites, this 61.1(a) 1982 discussion that we had earlier
22 that we kind of backed into when we were doing
23 clarifying questions. I think we probably need to have
24 a little bit more discussion around.

25 But it seems to me this is at least for some

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1 sites today and in the future for that matter, a way
2 to not conduct some of the analyses that might otherwise
3 be required as long as you meet the standard.

4 And if that is the case, and if we make sure
5 that that's clearly articulated in the Rule language
6 that that is the case, or maybe it's just in the
7 statements of consideration for that matter, then I
8 think it's a good thing.

9 MR. CAMERON: Okay. Larry and then David
10 and then the audience.

11 MR. CAMPER: Well I think that -- thank
12 you. I think that John's point about guidance versus
13 rule language is a point well made. And there's always
14 that balance that you try to achieve. And I share much
15 of your sentiment.

16 But I would have to say, and that's what
17 I was going to say, and Tom has said it in his usual
18 eloquent manner, this is designed to provide relief.
19 It's designed to provide relief for the operator as to
20 whether or not you need to do the third tier review based
21 upon whether or not you exceed the limits specified in
22 Table A.

23 I wonder in fact, how useful it might be
24 to the State of South Carolina, for example.

25 MR. CAMERON: David?

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1 MR. ESH: Yes, and I was going to add to
2 that, it's definitely intended to provide relief there
3 when you do or do not need to do that evaluation. And
4 the reason why we put it in the regulation, it's very
5 analogous to the waste classification tables for
6 protection of the intruder that was originally done.

7 So if conceptually you have trouble with
8 Table A, then I think you should also have trouble with
9 the waste classification tables. Because they're
10 almost identical.

11 Use some of fractions. Here's the
12 concentrations. The only change being that it's based
13 on a facility average basis. And that we also added
14 in, instead of it just being long lived transuranics,
15 it's long lived isotopes because we needed to capture
16 the uranium.

17 So, the value for that, the long lived
18 alpha admitting was made more generic. Otherwise
19 conceptually, that was our intention. Now, if it's
20 confusing in language or that sort of thing, those are
21 the types of things we want comments on so we can make
22 it less confusing.

23 But conceptually that's what we were
24 shooting for.

25 MR. CAMERON: Okay. Thank you. Larry,

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1 thank you. David. Anybody here in the audience in
2 Rockville on this first topic?

3 (No response)

4 MR. CAMERON: Okay. Arlene, does anybody
5 on the phone want to make a comment on the analysis time
6 frames? The first topic of discussion?

7 OPERATOR: Yes sir. We have Roger Seitz.
8 Your line is now open.

9 MR. SEITZ: Thank you. And I appreciate
10 the opportunity to have a chance to hear your
11 perspectives and a chance to comment.

12 I just wanted to add one thought on the
13 stability question. And based on what you were saying
14 Dave, is stability -- does it need to be an objective
15 for that protective assurance period? Or are we
16 providing protectiveness with the performance
17 objectives?

18 MR. ESH: Right. So what you're saying
19 is, should you even have a separate subpart C
20 performance objective for stability. Or is it all
21 rolled under your analysis for 61.41 and .42. That's
22 a good question.

23 You know, we -- the reason why it's
24 separate is because to be quite frank, it was separate
25 when we started working on the regulation. And it is

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1 an important consideration by the Commission,
2 stability of the site. How do you evaluate the
3 stability of the site?

4 So, and we put this in the guidance
5 document. I'll just throw it out there because it
6 might be of interest to some of you.

7 The way we would look at it sitting in our
8 regulatory house, is somebody might come in with the
9 greatest analysis in the world that they say look, this
10 demonstrates -- I can meet 61.44.

11 But if the support is not there for that
12 analysis or we believe there is, you know, unresolved
13 -- the questions you simply can't resolve about the
14 stability of that site, maybe your risk assessment
15 tools aren't sufficient to evaluate that condition.
16 It's similar to conceptually what's done with those
17 exclusionary waste -- or safe characteristics under
18 61.50.

19 There may be technical considerations for
20 a particular site that make it not very amenable to risk
21 assessment to put it generally. So, we have that in
22 the guidance under 61.44 as the -- that would be within
23 the regulatory analysis process that we would use or
24 that our Agreement State regulators could use that say
25 hey, irrespective of your risk assessment, because of

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1 these stability issues, I'm not going to allow you to
2 dispose of this sort of waste.

3 Or, I'm going to limit you this amount of
4 this concentration or this quantity or combination
5 thereof, so.

6 MR. CAMERON: Okay. Thanks, David.

7 MR. SEITZ: David can I --

8 MR. CAMERON: Yes, Roger?

9 MR. SEITZ: Yes, this is still Rogers. I
10 just wanted to -- I think, I can -- I think the 1,000
11 year period of compliance just for consistency with the
12 past is fine. But maybe there's an argument that can
13 be made that you don't need the stability beyond that
14 time if you're already covered under the other
15 objectives.

16 MR. ESH: Sure. I understand. Thank
17 you.

18 MR. CAMERON: Okay. Thanks, Roger. Any
19 -- Arlene, do you have anybody else?

20 OPERATOR: Yes, sir. There's one left.
21 From Paul Lohaus. Your line is now open.

22 MR. LOHAUS: Hello Chip.

23 MR. CAMERON: Hi, Paul.

24 MR. LOHAUS: I think the comment I wanted
25 to offer has really already been made. But it deals

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1 with the issue that John raised about the complexity.

2 And the question of whether a requirement
3 was in the rule as a prescriptive requirement. Or
4 whether you maintain your rule on more of a performance
5 base and have objectives that are then met through
6 application of more detailed guidance.

7 And we wrestled with that question and one
8 of the criterion that we used to sort of make a
9 distinction on whether the requirement should go into
10 guidance as a guidance how to part, or whether it should
11 be an actual prescriptive requirement in the Rule,
12 really was sort of two based.

13 One was whether the requirement was
14 necessary to meet or implement other requirements of
15 the Rule, such as classification system. And the
16 second sort of dealt with whether the requirement was
17 absolutely necessary. Really a minimum requirement to
18 help ensure that the performance objectives would be
19 met.

20 And again, I think waste classification's
21 a good example of that. And I just wanted to comment
22 quickly on the question of what we used relative to the
23 time frame for stability on facility design.

24 On the facility design, the waste form and
25 the container, the concept was to rely on that for a

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1 300 to 500 year time frame. And the analyses
2 supporting the Rule, were really based on the fact that
3 at 500 years, most of the waste would basically be
4 homogeneous with a few exceptions, activated metals
5 potentially.

6 And the analyses were based on ensuring
7 that you would meet the performance objectives at a 500
8 year time frame even though the analyses were carried
9 out to a 10,000 year time frame. But at 500 years,
10 under the Rule, you should have good assurance that
11 you'll meet both the intruder performance objective and
12 the environmental release objective, the 25 millirem
13 standard.

14 So that was really the -- sort of the
15 contents that we applied. And obviously the current
16 Rule as proposed, carries that out quite a bit further.
17 And does add, as John notes, a fair degree of
18 complexity.

19 I appreciate the opportunity to comment.
20 Thanks a lot.

21 MR. CAMERON: Okay. Thanks. Thanks,
22 Paul. A final quick comment from John?

23 MR. TAUXE: On the stability, I'm sort of
24 in the camp with Roger Seitz on this. I don't really
25 understand the need for stability in its own right.

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1 And it seems like the, you know, going
2 after the performance objectives in .41 and .42 is
3 sufficient to ensure safety of the site. If it's low
4 risk, if it's falling apart, you know, maybe that's not
5 in of itself a problem.

6 My other quick comment on stability is the
7 definition here. And I commented on this earlier in
8 the 2013 comments. In definitions it says, stability
9 means structural stability.

10 Well, that's just a tautological
11 definition. And some extra explanation as to exactly
12 what is the thinking behind that? Like are we talking
13 about a subsidence or erosion or what, you know, give
14 us some more ideas of what you're talking about
15 stability as structural stability is not just -- it's
16 not a very useful definition.

17 MR. CAMERON: Okay. Good.

18 MR. TAUXE: And then I have Table A
19 comments if we're still doing that. Just some --

20 MR. CAMERON: Why don't you do it quickly.
21 And then we'll give John a --

22 MR. TAUXE: Okay. Quickly, Table A,
23 okay, you guys have gone part way to using SI units by
24 converting rem to sieverts. I applaud that. Let's
25 finish the job and express this instead of in curies

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1 in becquerels. Or at least in both.

2 And put the SI first and put the others in
3 parenthesis if they're needed. But let's get away from
4 curies here.

5 And also, the -- one confusing thing, just
6 in how the Table is presented. Is the way the units
7 are in the header of the Table for some of the items
8 in the Table. And then there are footnotes down below.
9 And the way it's written in the red line strike out,
10 footnote three on 10 makes it look like 10 cubed.

11 So, there's just some formatting issues
12 with that Table that I think could use some
13 clarification. And I'm a big proponent of
14 metrication. And I would suggest you complete the job
15 and let's do this in becquerels phase.

16 MR. CAMERON: Thank you. Thank you,
17 John. And John Greeves.

18 MR. GREEVES: Yes, I'll try and be quick.
19 I've got a concern about the implementation of
20 stability from 1,000 to 10,000 years. It's -- I think
21 it's got implementation issues. I wouldn't have
22 difficulty defending stability for 10,000 years.

23 And when we, the then staff was doing this,
24 the context we had was uranium mill tailings. We could
25 really only come up with a concept that was

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1 implementable on the order of 200 to 1,000 years, the
2 mill tailings piles are the still example.

3 And I invite you to think about the
4 difficulty of implementing a 10,000 year approach on
5 stability of just -- and like other speakers, I would
6 think relying on the .42 and -- .41 and .42 performance
7 objectives as an analysis would take care of that
8 concern.

9 Laying something into .44 that might
10 require an applicant or a regulator to try to defend
11 a 10,000 year stability is going to be problematic.

12 MR. CAMERON: Okay.

13 MR. ESH: Within 61.44, in the guidance
14 document, we do indicate that you can evaluate
15 stability with respect to how it influences your
16 ability to meet the other performance objectives. So
17 it's not an abstract dimensional change type of
18 analysis or anything like that.

19 It is tied to facility performance. And
20 the other thing I would add is, how are you going to
21 say what the facility performance is if you can't say
22 that your facility is stable? Those things seem to
23 conflict with each other.

24 So, I understand the argument that may be
25 61.44 you're saying can be rolled into the other ones,

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1 but conceptually, stability of your system has to be
2 part of your risk analysis. Whether you may have a case
3 as John indicated, where you can show even with
4 instability my risks are manageable. That's a fair
5 argument and approach.

6 But I think the issue of stability, it's
7 not that you can just get away from it. And especially
8 if you're disposing of material that has a long term
9 persistent hazard. That's the -- the waste you're
10 choosing to dispose of, show me that it's safe.

11 MR. CAMERON: Okay. We're going to take
12 a break. Arlene, I'm assuming there's no one else on
13 the line?

14 OPERATOR: No sir, at this time the queue
15 is clear.

16 MR. CAMERON: Okay. We're going to come
17 back at 12:45. That doesn't give you the full hour for
18 lunch. But almost, okay.

19 We'll come back at 12:45. And a question
20 for the panelists since you're traveling and
21 everything, if we need to go over to 4:00, is that going
22 to be acceptable? Okay.

23 So, let's break. 12:45. And Arlene,
24 we'll be back precisely starting at 12:45, okay?

25 OPERATOR: Yes, sir.

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1 MR. CAMERON: Thank you, Arlene.

2 OPERATOR: You're welcome.

3 (Whereupon, the above-entitled matter
4 went off the record at 11:54 a.m. and
5 resumed at 12:49 p.m.)

6 MR. CAMERON: We're going to continue now
7 with the second technical issues, and this performance
8 assessment.

9 And, David, you're going to do this one,
10 too?

11 And we're going to have a presentation by
12 Dave Esh. And then we're going to open up to a panel,
13 and then the audience and the phone.

14 David?

15 MR. ESH: Thank you, Chip. This is the
16 second topic. We had hoped to get through three before
17 lunch. We got through one, so hopefully we'll improve
18 our pace a bit.

19 But, the second topic is performance
20 assessment. And my introduction is going to be
21 considerably more brief for this one than the previous
22 one.

23 It's not a new topic. We believe in our
24 minds the way we consider it is it's a more renaming

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1 of or restating of the previous topic in the existing
2 regulation, which is technical analysis. We have
3 added some modifications to what we say modernize the
4 technical analysis requirements, but those things that
5 are added we feel should be part of any technical
6 analysis that's being performed now. It just makes
7 some of them explicit in the requirements.

8 So, the new requirements are reflected in
9 61.13, and they're in three main areas here: They
10 reflect the scope of the analyses, features, events and
11 processes, uncertainty and variability and the
12 consideration thereof, and what I feel is one of the
13 most important topics, model support for the evaluation
14 you're doing.

15 In addition to that, we have a requirement
16 to update the performance assessment at closure. And
17 as we discussed earlier in the morning, we modified the
18 siting characteristics consistent with the disposal of
19 long-lived waste. So, overall though in the
20 performance assessment area it's a migration of some
21 things that were implicit to explicit just because
22 those are the things that we felt were the key
23 components of the performance assessment that somebody
24 needed to evaluate.

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1 Along the lines of what we discussed in the
2 morning though, these requirements I'd say are pretty
3 much a high level. They basically say consider
4 uncertainty and variability. They don't say what you
5 need to do or how you need to do it, but they put the
6 requirement in place that you need to do that sort of
7 evaluation.

8 So next slide, please. This diagram shows
9 conceptually what we think of the performance
10 assessment process. It's in the center. It's a
11 learning or evaluation process. You have the main
12 elements of collecting data, which can include the site
13 characteristics, design and waste form. From that you
14 develop conceptual models and then develop numerical
15 and computer models, and then combine the models and
16 estimate the effects and iterate until done.

17 Around the outside of this diagram we've
18 reflected the requirements that we added to the
19 regulation that are either related to or about the
20 performance assessment. So at the bottom there's four
21 reflected here for 61.13 that are directly related to
22 the performance assessment or associated analyses.
23 And then the three at the top are related to kind of
24 more bookkeeping or completeness associated with doing

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1 the performance assessment.

2 So, then the next three slides I'm not
3 going to read. They're here in the slide package so
4 that you have the text in front of you if you want to
5 state any of the specific language as we discuss it
6 here. But basically on the first one we give the
7 definition of "performance assessment" and then we list
8 what the various analyses that you need to do with
9 respect to the performance assessment.

10 The last thing on slide 16 is a hazard map
11 example. This our in-house GIS expert Alan Gross
12 developed. We had him do a whole series of these.
13 This issue of, well, maybe it doesn't apply to those
14 of you that have a site, but if in fact somebody was
15 trying to do a new site and if I was a regulator in an
16 Agreement State or at the NRC and I was trying to
17 evaluate the suitability of a site, we thought the hazard
18 map examples would be useful as they're not an
19 exclusionary if the map is colored where my site
20 location is, I can't put it there. It's a I need to
21 look at this aspect in a little more detail or more
22 detail for my disposal site if in fact it says those
23 types of hazards may be present. So we thought that
24 would be a useful tool that people could use to evaluate

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1 a site. And then siting characteristics. These are
2 all in the guidance document.

3 Okay. So, on slide 17 what we're seeking
4 feedback on with respect to the performance assessment
5 is first for performance assessment people maybe this
6 is heretical, but at the high level is it even suitable
7 to use technical analyses to evaluate the disposal of
8 long-lived waste? We've heard that from some
9 stakeholders leading up to this point. That's the
10 first topic.

11 The second is the specific new technical
12 analysis requirements that we've provided for the
13 performance assessment.

14 And then the modifications to the siting
15 characteristics requirements. We can discuss that in
16 more detail here, if you'd like, if you've had a chance
17 to look at those changes.

18 And then finally the requirement to update
19 the performance assessment and closure under 61.28.

20 MR. CAMERON: Thank you, David. And I
21 think we'll go through the bullets one by one.

22 And I would just note earlier this morning
23 Susan Jenkins on the phone was referring to a
24 hypothetical site and she asked a question about 61.13.

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1 And we thought that we would be getting back to her with
2 some clarification on that this afternoon, but after
3 talking to the staff, they thought that was a really
4 good comment and they want to take it back to the working
5 group to address. So I just wanted to note that that
6 is going to be an open issue for the staff.

7 So, with that, suitability of using
8 technical analyses. John, you want to go on that one?
9 You have anything?

10 MR. TAUXE: I'd just like a little more
11 clarification about what exactly you mean there.

12 MR. ESH: Right. Okay. So one way you
13 could go about providing requirements for this type of
14 problem would be similar to what's done in similar
15 countries or that even the NRC did with the waste
16 classification table. At the C limit above that you
17 have greater than class C waste that then says may not
18 be amenable to disposal in the near surface. It
19 depends on the conditions and it would be evaluated on
20 a case-by-case basis. So, the idea is that you could
21 use technical analyses to determine what the limits
22 might be for a particular type of waste or site or
23 location, or you could specify a quantity and
24 concentration number.

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1 So, X curies of depleted uranium as
2 suitable for disposal in the near surface and above that
3 not suitable. So it's at the top level something
4 different than using technical analysis and
5 performance assessment to establish limits or
6 requirements. And you see that in some other programs
7 internationally, is they'll set limits for long-lived
8 alpha that don't have a very clear derivation as to how
9 they come up with them. And that's the requirement.
10 If you're above that concentration of becquerels per
11 kilogram of long-lived alpha, then it's not suitable
12 for near-surface disposal. So they use an approach to
13 manage uncertainty that way, which is kind of different
14 than the technical analysis-based approach that we've
15 put forward in this regulation.

16 What we've put forward is in alignment with
17 what's been done in the past in the U.S., but it's just
18 to acknowledge that there are other approaches and to
19 hear the Panel's views on is this the right approach
20 or is there some merit to some of those other
21 approaches?

22 MR. CAMERON: And with that
23 clarification, do you want to comment now, or should
24 we go to Tom Magette first?

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1 MR. TAUXE: We can --

2 MR. CAMERON: Tom?

3 MR. TAUXE: Well, just even those examples
4 you threw out must have some technical analysis behind
5 them, you'd think, rather than just pulling a number
6 out of the air. But it's not necessarily a
7 site-specific technical analysis or it wouldn't be, but
8 there must be something behind that.

9 MR. ESH: Right. Not necessarily. I
10 mean, I think in some cases it's more of a political
11 or policy approach or statement as to this is where
12 we're going to set a line and the below it you do this
13 and above it you do that. It's a way to manage the
14 problem. And John was talking about wanting
15 simplicity in things, so that's a pretty simple way to
16 do things.

17 And I think it works if you have say one
18 type of waste or one location or a few locations that
19 you're dealing with, because then you could tailor that
20 number to the specific site or type of waste and
21 locations. But if you have potentially a variety
22 -- you know, the United States is very diverse in terms
23 of its natural environments and conditions that you can
24 potentially deal with. And that was part of the

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1 problem with developing the waste classification
2 tables in the U.S. is you have to make one size fits
3 all, but one size doesn't really fit all.

4 So, this would be the same thing here. But
5 at a high level we wanted to discuss it to make sure,
6 okay, everybody's okay with using the technical
7 analysis. Now let's get down to the meat of the matter
8 and decide what are the specifics of the technical
9 analyses, specific requirements of the technical
10 analyses that we need to have.

11 MR. CAMERON: So, let's see if you're all
12 comfortable with this before we get into the details
13 with Tom.

14 MR. MAGETTE: So, the answer to your
15 fundamental question I think is yes. I like the idea
16 of technical analyses. I think it goes straight to
17 Larry's point from this morning, which is what could
18 possibly be better than a site-specific analysis?
19 Now, obviously part of that is also the concentration
20 volume mass of the waste, the containerization, all
21 that. But, yes, a site-specific analysis to me is the
22 gold standard.

23 And to your point, David, that you just
24 made in terms of a one-size-fits-all, you'll never come

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1 up with a set of classification tables that will be
2 better than a site-specific analysis. Having said
3 that, I think it's reasonable to have exclusion
4 criteria. Pretty much all siting techniques for any
5 kind of facility have some level of exclusion criteria.
6 So you don't want a low-level radioactive waste
7 facility within 100 feet of an elementary school, which
8 is probably not going to be in your Regs, but you know
9 what I mean. So, yes, flood plain, the ones that you
10 identified. That's also imminently reasonable. But
11 I think going more to a technical analysis standard and
12 getting away from the classification tables is a good
13 thing.

14 When we come to the next point, I have some
15 specific comments on what's in 61.13 that I do think
16 some of it is too prescriptive. But also even if you
17 keep a more prescriptive approach, I have some specific
18 comments on that. But in general I like the approach.
19 I think it's sound.

20 MR. CAMERON: Let's go to Dan. Dan?

21 MR. SHRUM: Again, not to belabor it, but
22 we were expecting a requirement for performance
23 assessment, so I think we're all in agreement.

24 But Tom mentioned that it's the gold

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1 standard. And speaking of gold, I do have a comment
2 on the cost to industry. I'm not sure where you got
3 those costs. They're not even remotely close.
4 They're very low.

5 And my other question is does that include
6 the additional model when you go to closure, this
7 million dollars cost to industry?

8 MR. ESH: I'm not the person to answer the
9 questions about the cost numbers that have been
10 developed. I don't know. The answer is we'll have to
11 go back and look at that.

12 I remember helping at least a couple
13 individuals when they were working on that, providing
14 names of people in industry to supply information for
15 them to develop those estimates. At one point I
16 provided some contacts for them to get information. I
17 don't know who or where they may have got the
18 information from to do it. But we'll have to get back
19 to you on that one.

20 MR. SHRUM: And I don't know that it
21 matters. I mean, it's going to be a requirement. But
22 these guys do it, Neptune. And I guess you didn't even
23 notice that, did you?

24 MR. ESH: Are you saying John's too

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1 expensive?

2 MR. SHRUM: Yes, John's too expensive.

3 (Laughter)

4 MR. CAMERON: Okay. In Phoenix the
5 question of the regulatory analysis came up that the
6 NRC does, and I'm told that it is available to the
7 public. Okay? That's cost analysis. So look for
8 that.

9 Let's go to the 61.13 questions. Unless,
10 John, you have --

11 MR. GREEVES: I thought you were going to
12 go through the four. You started down there and you
13 never got to me.

14 Quickly on technical analysis, the
15 original rule 61.13 is titled, "Technical Analysis,"
16 so I agree that it needs to be done. I think there are
17 ways to clarify that which in part you've done. And
18 when we get to 61.13, I'll explain why I think you went
19 a bit too far. So, I'll stop with that. I agree we
20 really do need technical analysis and I'll make some
21 more comments when we get to 61.13.

22 MR. CAMERON: Do you want to --

23 MR. GREEVES: Just continue?

24 MR. CAMERON: -- say anything on 61.13 --

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1 (Simultaneous speaking)

2 MR. GREEVES: Just to -- by the way, I'm
3 finding this panel discussion feedback very useful, so
4 I thank you for putting that together.

5 And following up what I said earlier, 61.13
6 has been implemented in the past. People have been
7 doing technical analyses. People have been doing
8 performance assessments. We just didn't call it that
9 back in 1980. And I just don't think it's necessary
10 to take what used to be 4 paragraphs and turn it into
11 16. I think you could do it in a shorter amount of
12 space and call for site-specific analysis, which is
13 needed. And the more specificity you put in here, it
14 just becomes I think potentially a burden on both the
15 operator and the reviewing agency and Agreement State.

16 And just as an aside, I'll second what Dan
17 Shrum said. Part of what I do is GoldSIM analysis for
18 other clients, and the numbers you have in here are way
19 under my experience putting together a GoldSIM model
20 for this type of activity. I'd be happy to be a source
21 if somebody wants to know about that.

22 MR. ESH: But remember --

23 MR. GREEVES: You can spend a million
24 dollars a year on GoldSIM without a bit of trouble.

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1 MR. ESH: But remember the cost estimates
2 are the delta for the new rulemaking compared to what
3 you have to do now. So if you said people are already
4 doing all this, then what's the additional cost that
5 you're talking about?

6 MR. GREEVES: It's sort of -- and you're
7 reminding me, the language you have in the many, many
8 more paragraphs will lead me to believe you're looking
9 for a PRA-type analysis. And that's a step change over
10 what people have done in the past. Recent past I think
11 Texas has done some things, but I think other sited
12 states have not gone that far. And this rule is begging
13 for a GoldSIM-type analysis and those things cost you
14 millions of dollars. All you have to do is look at
15 what's on the table now to analyze the site at West
16 Valley. That thing is going to cost millions of
17 dollars and take years. And that's the kind of
18 analysis this rule is going to cause to happen.

19 MR. CAMERON: David, do you --

20 MR. GREEVES: My opinion.

21 MR. CAMERON: -- agree with John saying
22 that this is more of a PRA? Do you agree with what he
23 just said?

24 MR. ESH: No, I mean, what I said in my

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1 opening remarks, or I hope I said was that we don't view
2 the 61.13 requirements as anything different than what
3 is or should be being done right now anyway. And so,
4 you can't have it both ways. Either it is being done
5 and therefore the new requirements don't cause you any
6 trouble, or it's not being done and then the new
7 requirements will cause you burden, one way or the
8 other.

9 So, our view is that from what we've seen
10 with the various analyses is they've become modernized.
11 They're doing the things that we put in the
12 requirements. This just puts it in the checklist
13 there. When the state regulators or us look at one,
14 we can make sure -- go through each of those elements
15 and yes they did this, and yes they did this, and here's
16 how they did it, so on and so forth.

17 MR. CAMERON: Dan, do you have a comment?
18 Then we'll go to Tom.

19 MR. SHRUM: Very quick. Yes, we've been
20 doing it. I mean, both of our facilities we have done
21 models. But we actually had this discussion this
22 morning. Is your expectation that this is a
23 probabilistic analysis? I thought I read that and I
24 couldn't find where I thought I read that. Is this

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1 a --

2 MR. ESH: No.

3 MR. SHRUM: -- different breed of animal?

4 MR. ESH: No, we don't prescribe what type
5 of analysis you need to do. And when you get a chance
6 to get through the 450 pages of guidance document I
7 think you'll hopefully see that. You can do a
8 deterministic analysis. In fact, if your site is
9 simple and you can do a simple analysis and make a simple
10 argument of safety, by all means you should do that.
11 There's no reason to add in the complexity unless you
12 have to or choose to because it's some business
13 advantage or whatnot. But we don't prescribe a certain
14 type of analyses.

15 And that's why in say the performance
16 objectives we have just a numerical value. We don't
17 have the peak of the mean value from the probabilistic
18 analysis must be 25 millirem. It just says 25
19 millirem. And then in the guidance document we say if
20 you're doing probabilistic analyses, here's the metric
21 to use. If you're using deterministic, here's what you
22 use, and so on and so forth.

23 MR. CAMERON: And Larry before Tom.
24 Larry?

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1 MR. CAMPER: Dave, going back to John's
2 comment about level of complexity, which he's brought
3 up several times in his commentary, which is
4 understandable, and going from 4 paragraphs to 14
5 paragraphs, I counted and I think that's about right.
6 But what is -- simply state what caused that. Why do
7 we go from 4 to 14?

8 MR. ESH: Right, the issue is that as you
9 go from say a traditional low-level waste stream to
10 maybe a concentrated long-lived waste stream, then some
11 of those elements of a performance assessment, like
12 consideration of uncertainty and variability or model
13 support, support for your calculations by comparing the
14 data and analogs and those sorts of things -- that
15 becomes much more important because you're dealing with
16 a harder problem and potentially a more risky problem.
17 So, the reason we added those requirements is because
18 when you move to this other type of problem, it becomes
19 a more difficult problem. And we wanted to ensure
20 those elements of a modern performance assessment were
21 in the requirements.

22 So, all of it does to be implemented in a
23 risk-informed performance-based manner. So, what you
24 need to do with evaluation of uncertainty for your

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1 simple problem might be a lot different than what you
2 do with an uncertainty evaluation for a complicated
3 problem.

4 MR. CAMERON: And, Tom?

5 MR. MAGETTE: Thanks, Chip. So, it
6 strikes me that in attempting to define a
7 performance-based approach you have become a little bit
8 more prescriptive than you need to be. And I think
9 61.13 is the case where you do simply have more
10 specified requirements than are necessary.

11 And even to your last point I would say
12 these requirements are not iterative. In other words,
13 they don't become greater as the problem becomes
14 greater. They just apply, as is the case with the
15 regulation. So, what you're looking for for a harder
16 problem -- you've also required an applicant to come
17 forward, or a licensee of an existing site to come
18 forward with a model that has sufficient capability to
19 comply with a harder problem. So, I think you have
20 imposed an additional requirement where it may not be
21 necessary.

22 And so, I mean, if I look at this -- and
23 I do think most of this would fit in the guidance
24 actually. So, if I look at 61.13(a)(1) to consider

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1 features, events and processes -- and all that
2 paragraph perfectly fine. Okay. Evaluate them in
3 detail too if their omission would significantly affect
4 meeting the performance objectives. See, I don't
5 think you have to say that. I don't think you have to
6 specify what you have to do in order to show what
7 wouldn't happen. That might be something to get into
8 in guidance.

9 I mean, 3, I have a couple problems with
10 3. Consider the likelihood of disruptive or other
11 unlikely features, events, etcetera. Consider the
12 likelihood of unlikely. I mean, to me at that point
13 if there's a real question about something that an
14 applicant omitted because they believe it was
15 sufficiently unlikely, then I would expect to see
16 either justification for that if it's on the border an
17 RAI. And I'm not trying to lay the groundwork for a
18 bunch of RAIs, but some of this I would expect to be
19 -- and this would go to your last comment, David, where
20 if you need it and it applies --

21 MR. ESH: Right.

22 MR. MAGETTE: -- you would expect the
23 applicant to include it. And if you didn't see it,
24 you'd ask for it. If you don't need it and they don't

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1 include it, then all is good. So, I do think there's
2 a level of prescription here that you don't need in a
3 rule in order to get what you want.

4 MR. ESH: Well, and the issue with that one
5 in particular is that -- okay. So, say you're
6 analyzing traditional low-level waste for a short
7 period of time. It's just a probability argument.
8 What's the likelihood that you have something unlikely
9 happen that's going to drive your risk? When you
10 extend the time frames, you can capture more and more
11 of those unlikely events or processes that may happen.
12 And I would point to say Part 63 with Yucca Mountain
13 that has FEP requirements in it, the features, events
14 and processes. They define a frequency cutoff that
15 says when you need to consider something and when you
16 don't.

17 We didn't do that here. We took a
18 high-level approach to just say at the high level this
19 is what you need to include. In the guidance document
20 we do recommend some frequency cutoffs and why you might
21 use those. And they're different than Part 63, and we
22 provided an argument for that. So, I would say keep
23 that in mind.

24 I understand your comment. The whole idea

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1 between the requirements in 61.13 were to get three
2 things right: the scope right, consider uncertainty and
3 provide support for your calculations. So, if there's
4 a simpler way to achieve those three things, fine.
5 What we have on paper right now is obviously what we
6 came up with through our working group process.

7 MR. MAGETTE: I think there probably is a
8 simpler way. I'd be happy to give you a written comment
9 to give you some specificity of our thinking.

10 One other example and one generic comment. Like
11 the technical adequacy of the model point here, I mean,
12 really I think that that's also not rule language to
13 my way of thinking. If there's any doubt as to the tool
14 that an applicant comes forward with, staff has ample
15 opportunity to deal with that.

16 And my final comment, Chip, is that I also
17 don't agree with your earlier comment that if you're
18 already doing it, it's okay to have it in the rule
19 because you're already doing it and nothing has
20 changed. Maybe life should be that way, but I don't
21 think life is that way.

22 I mean, there is a thing called regulatory
23 creep, and the more of it you basically document in the
24 regulations, then that becomes a new standard which

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1 people then ask for more on top of. And regulations
2 are implemented by human beings and that's all well and
3 fine, but I do think that's something to be wary of,
4 the notion that, hey, they're already doing it.

5 MR. CAMERON: Okay. Thank you. And
6 Larry has something to say. Then we're going to go to
7 Charles, then we're going to go to the siting
8 characteristics.

9 MR. CAMPER: Just a quick regulatory
10 philosophy insert, if you will. One might argue that
11 the level of detail that's being now required by 61.13
12 is overbearing or maybe too much, whatever. But I do
13 think that one of the things that drove the staff to
14 specify all those various things is something I alluded
15 to earlier. We were having conversations with the
16 Commissioners as we were putting this together. There
17 were more things on their minds about consistency than
18 only the compliance period.

19 I can recall specifically one Commissioner
20 saying to me sites should be evaluated essentially the
21 same wherever they are or any site to be developed. And
22 whatever those parameters are should be evaluated. We
23 should be specifying what they are to ensure
24 consistency. So, the staff had that on its mind when

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1 it did some of this from a regulatory philosophy
2 standpoint.

3 MR. CAMERON: Okay. Let's go to Charles.
4 And then Dan has the 61.13. Let's move onto the other
5 issue because we do want to get to the audience and the
6 phones. Charles?

7 MR. MAGUIRE: Thank you. And maybe my
8 perspective will be a little different as an Agreement
9 State regulator. Some people talk about regulatory
10 creep, others just talk about the creepy regulators.

11 (Laughter)

12 MR. MAGUIRE: Some days I'm both. It's
13 important. I mean, these items that they're
14 pertaining about are important questions that you have
15 to be able to answer when you face your public, when
16 you face elected officials because there's an
17 ever-evolving market for disposal. And you could
18 launch into a licensing process thinking you would know
19 prescriptively exactly what waste streams were going
20 to come to the site. If you knew that, you could
21 probably develop a deterministic model that answered
22 enough of your questions or concerns that you could turn
23 around and face the public that you're responsible to
24 with really nice answers to difficult questions. That

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1 has not been our situation with the site.

2 Now, when I came to the Division three
3 years ago we had a deterministic model. My background
4 with modeling and things on the water quality side, I
5 quickly wanted a better model. I wanted a model that
6 did have some computer power associated with it. And
7 so, we pressed the regulated entity to develop a model
8 that was probabilistic. We wanted to be able to look
9 at numerous scenarios, numerous situations, an
10 ever-changing waste stream and still be able to make
11 the licensing decisions we were being asked to make.

12 Now, is that expensive? Yes. I don't
13 even want to know what that cost. But it was important
14 to us to be able to answer the questions. And I think
15 what I see in the regulations as you're putting them
16 forward is general enough that the states would have
17 the flexibility they needed to look at this site by
18 site. And I would just say it is a site-by-site
19 situation. And more than any other thing it depends
20 on what that site is planning on to bring into its
21 inventory as to how engaged you're going to have to be
22 in the model.

23 And so the importance of some of these
24 things I think is variable from site, from waste stream,

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1 from business plan, but I think you've got the right
2 components identified as to the sort of things you have
3 to get camped out on. I think in some cases to be
4 comfortable from the regulatory perspective you may
5 well have to have some sort of probabilistic modeling
6 capability where you can look at combinations of
7 scenarios. And I think we're fortunate we have
8 -- software has come along to meet the demand. I think
9 modeling skills are there. And so, it can be done.

10 What's important to us is that we modify
11 the performance assessment at least annually. And so,
12 it's not just a one-time beast. It's an annual beast,
13 or maybe more often depending on what licensing changes
14 are being proposed. But it lets us look carefully at
15 a lot of different things that affect the hard questions
16 that we have to answer. So, I think it's important to
17 move down to framework. I felt like you made it
18 flexible enough that somebody that would
19 -- a regulator that's not in my situation wouldn't have
20 to do what I have to do, wouldn't have to have what I
21 feel like I have to have, but could have it if they
22 wanted it.

23 One of the things that I think I need to
24 add -- and, Chip, I know the time. This morning we

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1 talked about compatibility, and I think this is the
2 place where really I wanted to talk about a
3 compatibility -- I'm not going to call it an issue. It
4 appears that you all are moving down a pathway that
5 would make this Compatibility B. I think in this
6 particular area we are thinking about it, but we may
7 want to ask you to consider C.

8 Because as we look at the performance
9 assessment model, as we look at what the entity that
10 the regulator is wanting to dispose, our current rules
11 put a performance analysis in terms of 1,000 years or
12 peak dose, whichever is longer. And I don't know if
13 that "or peak dose" creates heartburn for the NRC in
14 terms of Compatibility B. If it does, we might ask you
15 to think about that.

16 But I think in situations particularly
17 where you're considering depleted uranium or greater
18 than Class C, or other really long-lived radionuclides,
19 1,000 years might not be long enough to look at a
20 compliance period and completely satisfy the hard
21 questions that get asked.

22 MR. CAMERON: So, Charles, all of that
23 sounded very helpful for the staff, but just to clarify,
24 for 61.13 you're suggesting that the staff might want

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1 to look at Compatibility Level C rather than B?

2 MR. MAGETTE: Well, just in terms of where
3 the compliance period is being established and the
4 modeling tools are being proposed, I guess the
5 technical things. If there's room in there to look at
6 a peak dose versus -- I mean, certainly longer than at
7 that. Nothing less than 1,000 years, but longer than
8 the 1,000 years. I think there are places where what
9 you're offering for consideration might suggest that
10 a longer compliance period might be more appropriate.
11 Maybe I'd put that under scope.

12 MR. CAMERON: Okay. Thank you. Dan
13 Shrum on 61.13 and then we're going to move to the next
14 issue. Dan?

15 MR. SHRUM: As I was reading through the
16 buildup to the actual rule, there seemed to be a tone
17 of -- and I'll just read the words: "Limit the scenarios
18 to reasonably foreseeable activities that are
19 realistic and consistent with activities in and around
20 the disposal site at the time of closure."

21 So that seemed to be a theme. Those are
22 good words and we like that. Let's limit it to a
23 limited type of scope of what reality is.

24 In 61.13-3 which Tom already alluded to,

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1 "consider the likelihood of unlikely," and
2 61.13(a)(9), "consider alternative conceptual
3 models." So you've used the word "consider." You
4 have to consider effects, which we understand. But now
5 you have to consider the likelihood of the unlikely and
6 we have to consider the alternative conceptual models
7 or FEPs that are consistent with available data, duh,
8 duh, duh, duh, duh.

9 That's from a legal -- I'm not an attorney,
10 but from a legal standpoint that's a little scary for
11 me because that's a do loop. You familiar with do
12 loops?

13 MR. ESH: No.

14 MR. CAMERON: What are you suggesting that
15 they use instead of "consider?"

16 MR. SHRUM: Well, it just needs to be
17 removed. The reason for that is it will never end. So
18 I do a very thorough \$42 million model. I submit it.
19 And somebody challenges it and says, well, you didn't
20 consider the Martian attack and you have to consider
21 it. You have to actually model it. That's what you're
22 using the word "consider." So, I don't think that's
23 where it meant to go, but that's what the words ended
24 up saying is that you have to do that model.

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1 MR. ESH: But just in a general sense, when
2 we use the word "consider," that doesn't mean model.
3 I think that's a misinterpretation of how we would
4 represent that word.

5 MR. SHRUM: A performance assessment
6 shall consider.

7 MR. ESH: Yes, but you can consider in a
8 lot of different ways. I can write a paragraph showing
9 that I considered various features, events and
10 processes without doing a model of it. I mean, that's
11 the issue is like of course you could be narrow-minded
12 about how you go about this, but you can also be smart
13 about it. And we've provided the flexibility that you
14 can be smart about it. Whether you utilize that or not,
15 that's of course up to you.

16 MR. SHRUM: Okay. Think of the people
17 that aren't in this room right now, are looking for a
18 reason to put you into a do loop. Consider alternative
19 approaches, which is a do loop, and consider the
20 likelihood of the unlikely. They're
21 just --

22 MR. ESH: Right, but the likelihood of the
23 unlikely, that's not what it says. It says consider
24 the likelihood of disruptive or other unlikely events.

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1 So, "consider the likelihood of disruptive events" is
2 the main piece there.

3 MR. SHRUM: It's an "or" though. There's
4 no --

5 (Simultaneous speaking)

6 MR. CAMERON: Okay. Guys, I think we --

7 MR. ESH: But, yes, I mean, it's to
8 consider both of them, but the idea is that you can't
9 define your scope just based on what's happening today
10 if you're doing a projection of future performance.
11 You have to consider this lesser likelihood, features,
12 events and processes, otherwise you'll have an
13 incomplete analysis that of course you should be
14 challenged on. This provides the mechanism for you to
15 show how you've developed the scope of your analysis.
16 That's what this requirement is about.

17 MR. CAMERON: Well, before we go to John
18 for final comment on this, we're going to hear from
19 staff legal counsel Lisa.

20 MS. LONDON: Hi. I just wanted to add a
21 point here, and I think this has been a very helpful
22 discussion. And, Dan, I actually do understand what
23 you're talking about and I appreciate the concern.

24 And I just wanted to add I think part of

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1 the context of these revisions really is this idea of
2 performance-based, risk-informed performance-based.
3 And so I think your concern is a valid one. I think
4 unfortunately those that may be called to question
5 regarding the work that they do to defend their site
6 may have to look to the overarching purpose of the rule,
7 and that involves looking to the statements of
8 consideration and understanding that the approach was
9 not intended to necessarily consistently be
10 prescriptive. Where we were prescriptive it was
11 because we felt we needed to be prescriptive.

12 And where we perhaps built in language that
13 could be read to sort of allow this do loop, I think
14 it's more in the nature of providing that overarching
15 view of risk-informed performance-based. And you'll
16 be forced to tell that tale should you get called to
17 the mat on it. But I think it's the narration that the
18 NRC has because it's what we were going for.

19 MR. CAMERON: And because facilitators
20 are supposed to do this, I would just note that John
21 Greeves' point about the how-to in a Reg Guide may
22 lessen some of the concerns about the "consider" word
23 being brought up in a contention in an adjudicatory
24 proceeding.

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1 John, final comment on this? Then we'll
2 go to --

3 MR. TAUXE: Yes, one can consider and then
4 dismiss a particular item. And also I want to make sure
5 that there's a distinction made between a performance
6 assessment and a performance assessment model. A
7 model is used to support the performance assessment.
8 A performance assessment is more a document that makes
9 an argument about something. It may not even have a
10 model behind it. I would be surprised if it didn't have
11 something behind it. But the performance assessment
12 is not the performance assessment model and the
13 performance assessment can consider things that the
14 model does not.

15 MR. CAMERON: Okay. Good. Good
16 distinction. 61.50 modifications to the siting
17 characteristic requirements. Any comments on that?

18 (No audible response)

19 MR. CAMERON: Okay. How about
20 requirements to update the PA at closure?

21 (No audible response)

22 MR. CAMERON: All right. And this is --

23 MR. TAUXE: Seems to me it's a good idea.

24 MR. CAMERON: You don't need to

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1 necessarily say anything, but "good idea" is a good
2 comment. John Greeves?

3 MR. GREEVES: Alternative views. It's a
4 good idea, but what I'm concerned about is effectively
5 adding many, many more paragraphs to this will be a
6 burden on somebody, sited states for example. And I
7 think there are sited states out there now who are close
8 to having done the job and performed a tremendous
9 service for the country over the decades and now they're
10 faced with a rule that puts a burden on them to do this
11 -- and you read these words in here. It reads like PRA,
12 the full extent of what's in 61.13. So, I'm concerned
13 about the concept of having the additional requirements
14 in this rule and it drove my comments back to the
15 beginning about the 61.1(a) paragraph that says "as
16 applicable at the time."

17 So, I'm a little circular about this, but
18 I have some misgivings about requiring a full-blown
19 performance assessment which is going to drive somebody
20 to spend a lot of money at the end of their program when
21 they've already essentially in an interview closed a
22 number of cells years ago.

23 MR. CAMERON: Thank you. Thank you,
24 John. We're going to go to the audience here.

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1 Anybody?

2 (No audible response)

3 MR. CAMERON: And, Arlene, do we have
4 anybody on the phone who wants to comment on this last
5 topic?

6 OPERATOR: I would like to remind all
7 parties, audio parties that if you have a question,
8 please press star, one and state your name clearly.

9 But at present, sir, there are no questions
10 in the queue.

11 MR. CAMERON: Okay. Thank you.

12 We're going to go on to the next topic.
13 And I'm sure this is going to get much easier and simpler
14 as we go along. And this one is intruder assessment.
15 And, Dave, is that you again?

16 MR. GROSSMAN: No, that's me.

17 MR. CAMERON: That's Chris Grossman.

18 MR. ESH: Everybody gets a break from me.

19 MR. CAMERON: Okay.

20 MR. GROSSMAN: Okay. Thank you, Chip.
21 For this session we'll talk about the intruder
22 assessment, which as Dave mentioned during his initial
23 presentation was kind of the one thing you had to do
24 as part of this rulemaking to address the un-analyzed

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1 waste streams, the waste streams that weren't analyzed
2 to develop the waste classification systems.

3 So, currently Part 61 does not require an
4 explicit intruder assessment. It relies on the waste
5 classification tables to provide that protection and
6 the analyses that went in to develop them in the initial
7 rulemaking back in the 1980s.

8 And as Larry mentioned in his talk this
9 morning, the industry has identified new streams that
10 were not originally envisioned and weren't analyzed in
11 that initial analysis such as large quantities of
12 concentrated depleted uranium.

13 So, the proposed rule in 61.13 specifies
14 a new analysis for inadvertent intruder assessment.
15 And it is a new analysis. The proposed modification
16 requires what I call stylized analysis. And this is
17 one reason we use a different terminology than
18 "performance assessment," which is a comment that we've
19 received in the past as why not just lump this all under
20 PA? Because we view it as it is a little bit different
21 than someone might do in a PA if they chose a
22 probabilistic route, although it could be done under
23 that as well.

24 So, it would require stylized analysis.

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1 Instead of solely relying on the waste classification
2 system and analysis used to develop that system. The
3 new requirements are largely in 61.13 and they focus
4 on three areas: What's the scope of the analysis? And
5 most of this in the intruder area focuses on what are
6 the receptor scenarios? And a lot of that is actually
7 in the guidance more than in the rule, but the rule does
8 specify, as Dan pointed out in one of his comments just
9 a little bit ago, about reasonably foreseeable and
10 consistent with activities expected at the time of site
11 closure. That language is actually focused on the
12 intruder assessment, not so much the performance
13 assessment. So, I just wanted to clarify that. The
14 Commission direction there was for the intruder
15 scenarios be consistent with site closure.

16 So, we also talk about intruder barriers.
17 Intruder barriers were part of the rule before in this
18 area, in 61.13(b). And so, what we've done is extend
19 that and say the assessment should demonstrate the
20 performance of those barriers and also, like the PA,
21 deal with uncertainty and variability. The assessment
22 is used to demonstrate compliance with the performance
23 objective at 61.42. And then there's also a
24 requirement like the PA to update the assessment at

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1 closure.

2 So next slide, please. I apologize.
3 That's very hard to read, but it gives you an idea that
4 there's a thought process to this, a general thought
5 process to how this goes. And it's not too indifferent
6 from what a PA is outside of the formation of scenarios
7 because they're focused largely on receptors and what
8 a potential intruder might do. And as I mentioned,
9 they're based on scenarios that are realistic and
10 consistent with expected activities in and around the
11 disposal site at the time of closure. Dave just
12 pointed out to me that the flow diagram is also
13 available on page 4A in the guidance, if you want to
14 see it a little bit more clearly.

15 And then the dose limit for the compliance
16 period, which Dave also mentioned earlier, was 500
17 millirem, which is consistent with the original
18 analyses that developed the waste classification
19 tables so that there's a consistency between the tables
20 and what you would do in this analysis.

21 Next slide, please. So the next several
22 slides go through the different parts of the regulation
23 and where regulations involved intruder assessment
24 have been changed. In 61.2 we deal with definitions.

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1 So, there has been a little change to the "inadvertent
2 intruder" definition to be consistent with the
3 Commission direction. And then we define what an
4 "intruder assessment" is here, and its components.

5 The next slide, please. 61.7(c) is the
6 concept section of the rule. And this kind of lays out
7 the philosophy of inadvertent intrusion and why it's
8 important for low-level waste.

9 Next slide, please. This is a
10 continuation of that. I won't read these in the
11 interest of time, but they're here for your benefit if
12 you need to refer to them.

13 Next slide, please. 61.13(b) is where the
14 real requirements for what the intruder assessment are
15 identified. And the three areas kind of tailor with
16 my introductory slide: the scope, barriers, and then
17 uncertainty and variability.

18 Next slide, please. Forty-two is the
19 performance objective. There's A, B and C to that for
20 the different time periods.

21 Next slide. That's the last time period.

22 And then the next slide, please. So we're
23 looking for feedback from the Panel and for members of
24 the public who choose to comment on these areas where

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1 the changes have occurred related to the inadvertent
2 intruder assessment that deal with the definitions, the
3 concepts, the requirements for the analyses and then
4 updating at closure, and also the performance
5 objective.

6 MR. CAMERON: All right. So, let's start
7 with the high-level, the first new definitions. Dan?

8 MR. SHRUM: Just to be clear, when you say
9 "intruder," you always mean the inadvertent intruder,
10 correct?

11 MR. GROSSMAN: Correct.

12 MR. SHRUM: So, am I incorrect? Was there
13 a time when there was such a thing as an intruder and
14 we didn't have to protect the intruder, somebody who
15 intentionally goes and gets into a facility?

16 MR. GROSSMAN: The initial analysis that
17 developed Part 61 back in the '80s differentiated
18 between an advertent an inadvertent intruder. And
19 Part 61 has always been focused on the inadvertent.

20 MR. SHRUM: Okay.

21 MR. GROSSMAN: Yes.

22 MR. CAMERON: High level? John?

23 MR. TAUXE: I still fail to appreciate the
24 need for an intruder assessment. I really don't

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1 understand the fundamental driver for this. From my
2 perspective evaluating a member of the public covers
3 that. If you consider a member of the public as anybody
4 who might be doing things around the site and what they
5 might be doing, that would cover anything that an
6 intruder would do. I guess one difference is that the
7 intruder, reading in the guidance here, is to be
8 evaluated with a probability of one that an intruder
9 will happen.

10 And the examples given here in 13 are
11 normal activities. Well, normal varies from site to
12 site. Including agriculture, dwelling construction,
13 resource exploration or exploitation; e.g., well
14 drilling. There are sites where none of those apply.
15 And so, I've never understood why an intruder is
16 necessary to have its own assessment, or even to
17 evaluate somebody like that. And the fundamental flaw
18 for me is that it's very messy. The line between what's
19 a member of the public and what is an intruder can get
20 really fuzzy.

21 For example, let's say a site is there and
22 under natural evolution of the site waste becomes
23 exposed. This has happened even during operations at
24 sites, which means it will happen once institutional

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1 control is gone. If somebody comes along and sees a
2 shiny object and they say, oh, that's kind of cool; I
3 think I'll take that home, is that an intruder? Are
4 they less protected than a member of the public or is
5 it just a member of the public who was sort of hiking
6 along and saw this thing and said, hey, this is kind
7 of fun. It's washed out of the site and maybe it's down
8 in a creek or something like that.

9 Or let's say somebody comes along and does
10 something to the site unknowingly that triggers a
11 problem with the site. It doesn't affect them. Whitt
12 considered such a scenario like this, but it's also
13 valid for land disposal sites. The first person that
14 comes along, they do something that causes a problem.
15 They aren't affected. Are they an intruder? Well,
16 they didn't have any exposure. Then that causes
17 something to happen that affects somebody else later,
18 a member of the public who may not even be on the site,
19 but now is exposed to something that was a result of
20 something else. Who's the intruder? Who's a member
21 of the public? Why does it need to be so complicated?

22 So, maybe you can tell me why an intruder
23 assessment is necessary above and beyond just
24 everybody's a member of the public. Let's consider

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1 what all receptors might be doing and the probability
2 that they might be doing it. And essentially it should
3 all boil down a population dose assessment under ALARA.
4 It seems like protection of the greater good of
5 everybody, that's the way to do it. But maybe there's
6 another reason that the intruder assessment has to
7 happen. If that could be explained to me, I'd
8 appreciate it.

9 MR. CAMERON: Basic question for the
10 staff. Why do you need this provision for inadvertent
11 intruder protection. And we're going to go Magette and
12 John Greeves after we hear an answer.

13 MR. GROSSMAN: So, I just want to clarify
14 that there is a distinction drawn between an intruder
15 and a member of the public in that a member of the public
16 is exposed to releases from the site. So they're an
17 off-site person. And intruder is someone who comes
18 onto the site. So there is one distinction there.

19 And part of the reason for doing this was
20 to maintain some consistency because we weren't
21 changing the classification system. In order for this
22 analysis to be somewhat consistent with that approach
23 we felt that we would stick as much as possible to that
24 construct to do that and look at these stylized

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1 scenarios for an intruder with the limits that were
2 similar to what was done in the '80s to develop the
3 classification system. There was some concern about
4 getting wildly different than that system and having
5 both systems in the rule at the same time.

6 And I don't know if Dave wants to add to
7 that.

8 MR. ESH: Yes, one of the things I would
9 add is that you talk about probability, okay, and
10 probability of one. There is an implied probability
11 of the intruder scenario by the higher dose limit.
12 Okay? If the intruder was just a member of the public
13 and for whatever period we said the dose limit was X,
14 say 256 millirem, there would be no reason to give the
15 intruder a higher dose limit. He's just a member of
16 the public like anybody else. He would be 25 millirem,
17 too.

18 The fact that it is 500 is reflecting -- the
19 intruder is not an expected construct for the evolution
20 of the site and the system. He's an unexpected
21 outcome. The institutional controls, while not
22 guaranteed to be durable, the intention is that that
23 process will provide a layer of control to prevent
24 inadvertent use of the site. But the controls over the

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1 long term, the reliability of them is not guaranteed.
2 That's partly where the intruder construct came from.

3 So, the intention is that the controls that
4 you put in place will hopefully work and be robust for
5 a long period of time. But if there aren't people
6 actively there doing things, maintaining fences and all
7 the sorts of things you do with active controls, how
8 long is that going to prevent somebody from using the
9 site in some way that you didn't intend?

10 MR. TAUXE: So, after the loss of
11 institutional control, the fence turns into an
12 imaginary line.

13 MR. ESH: The fence is still there.

14 MR. TAUXE: Well, let's say after the loss
15 of passive control the fences aren't always -- the
16 fences will disappear. They'll get scavenged. After
17 that, then someone who enters on to what was once called
18 the site, is that person an intruder?

19 MR. ESH: Yes.

20 MR. TAUXE: Why not a member of the public?
21 They can't tell the difference. There's no signs left.
22 How does a member of the public know that the site is
23 even there? And now they become an intruder?

24 MR. ESH: Right. Remember --

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1 MR. TAUXE: Why is the intruder not
2 protected --

3 MR. ESH: Remember there's an element
4 of --

5 MR. TAUXE: -- at the same level?

6 MR. ESH: -- of controls. There's other
7 controls like deed restrictions and things like that
8 and site ownership, federal and state ownership of the
9 site. There's all those things that are temporary.

10 MR. TAUXE: I know.

11 MR. ESH: I don't disagree with you, John.
12 All those things are put in place to try to prevent the
13 situation that somebody uses that site in some way that
14 you don't intend them to. So those things are put in
15 place. But then the Commission stepped back and said,
16 yes, but irrespective of all those things we can't
17 guarantee that they're going to work for a long period
18 of time. So, then we come up with the waste
19 classification system and intruder requirements and
20 intruder barriers on top of that other layer of
21 protection. This is part of the defense-in-depth
22 argument that goes on. When you go to longer times,
23 I agree with you totally, it gets much more difficult
24 to make those arguments because your initial layers of

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1 defense may get challenged.

2 MR. CAMERON: Let's get some new voices in
3 here. Larry has something. Tom has something. John
4 Greeves has something. Larry?

5 MR. CAMPER: Well, it's always easy for me
6 to sit here and listen to these discussions and step
7 back from the technical for a moment and look at
8 regulatory philosophy. And let me share three
9 thoughts with you, John.

10 One, the idea of protecting the
11 inadvertent intruder. Going back to when Part 61 was
12 originated, as well as in most international schemes,
13 protecting an inadvertent intruder is a
14 well-understood and established concept. It is an
15 invasive intruder by nature. Certain assumptions are
16 used to define what that intruder does. It's not a
17 member of the public walking by and picking up a piece
18 of metal. The other thing is today in Part
19 61 the requirement is to protect the intruder. That's
20 all it says. And the assumption is you do that by
21 putting waste in the ground that meets the
22 classification system. Under the proposed regulation
23 the licensee has the option of using a WAC. How does
24 one protect the inadvertent intruder if one uses a WAC?

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1 MR. CAMERON: Okay. Tom? Tom and then
2 we'll go to John.

3 MR. MAGETTE: Just one quick comment about
4 the intruder concept. The problem I have is assuming
5 that it's a residential intruder, I think especially
6 if you combine that with the requirement that you look
7 at essentially a perpetuation of the current features
8 and characteristics of the site. And I think there are
9 plenty of existing -- or there are existing sites as
10 well as where I would look at if I were going to site
11 a future site that it would be perfectly reasonable to
12 assume today that they are not residential in nature,
13 would they be resided upon. So I think that's a bit
14 of a stretch.

15 And then when you start to combining that
16 with barriers, I don't know how you quite perpetuate
17 the concept of protecting a person that when you
18 perpetuated the site conditions you couldn't
19 necessarily foresee being there.

20 MR. GROSSMAN: Yes, Tom, I'd encourage you
21 to take a look at the guidance when you're preparing
22 your comments. I think we're moving away from that
23 idea somewhat in the guidance. Although the examples
24 are there, we talk about activities that can occur

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1 around the site. And the term in the language or in
2 the rule language is "occupy." I don't think we view
3 that as someone who sets up camp on site necessarily.
4 It just means that they're on the site.

5 MR. CAMERON: So the guidance is
6 instructive on this.

7 MR. GROSSMAN: I believe it is. We've
8 tried to do that, but we appreciate comments.

9 MR. CAMERON: And the question might be is
10 the guidance --

11 MR. GROSSMAN: Yes.

12 MR. CAMERON: -- consistent with the rule
13 language?

14 MR. ESH: And in that section, in the
15 guidance, when you look at it, just note that we
16 recommend a variety of approaches you can consider.
17 And of course, one of them is to just use the default
18 scenarios.

19 Because if you want to get into a do loop,
20 then start messing around with intruder scenarios.
21 That's guaranteed to get you in a do loop. Because
22 you'll have stakeholders that will come sit in your
23 public meetings.

24 And they'll say my relative so-and-so does

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1 this, and they live X miles from your site. And what
2 are you to say them, no, he doesn't? I mean, they'll
3 bring very specific examples of people that do things
4 in conditions that they think are relevant.

5 And if you're opening up the scenarios,
6 maybe some of the less conservative scenarios, you
7 might get stuck with evaluating some that are quite a
8 bit more restrictive. So just keep that in mind. But
9 that basically is what we outline. In the guidance we
10 talk about that.

11 MR. CAMERON: All right. Let's go to John
12 Greeves. And then let's go to the third bullet, new
13 technical analysis requirements. John?

14 MR. GREEVES: Yes. I just want to bring
15 this back to the fundamentals. The framers of Part 61,
16 in what I would call wisdom, the whole sense of it was
17 that performance objectives are primary.

18 There are four performance objectives.
19 They're all important. There's the protect the
20 public, protect the intruder is a performance
21 objective. It's not negotiable. You've got to do
22 that.

23 Protect the operational activities which
24 is what the Commission does day in, day out, but what's

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1 special about Part 61 out of these other three, the
2 public in the long term, the intruder and then the
3 fourth one, stability.

4 So everywhere you look in Part 61, it says
5 to the extent practicable, but you've got to meet the
6 performance objectives. So it's, you know, this
7 discussion we're having about should we not do
8 intruders, frankly, it's part of the fabric of the rule.
9 It's there. It's the performance objective. It's the
10 four things. They should be maintained.

11 And we sort of came at this from the
12 technical analysis. The four paragraphs that were
13 there before said do a technical analysis to support
14 the performance objectives. To me, that's all four of
15 them, one of which is the intruder.

16 So I don't think you need the, like, 12 more
17 paragraphs. It's already there. And you can do a
18 technical analysis of the intruder.

19 And, yes, there is some language in here
20 that refers to the tables. And, yes, that is a crutch
21 to maybe not do a technical analysis. But the lead
22 sentence says do a technical analysis for all the
23 performance objectives.

24 So I think it's there in something less

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1 than an additional 12 paragraphs that could clarify
2 that.

3 And I just repeat what I said earlier, the
4 four existing performance objectives which, by the way,
5 get tiered off in many other directions, including the
6 31.16 legislation that DOE has to actually implement
7 in other -- there's, you know, the decommissioning
8 rule. They all really point back to these types of four
9 primary criteria. So I'll stop with that.

10 MR. CAMERON: Okay. I think this
11 discussion is taking us through a lot of the bullets.
12 And Dan has a brief point. And, Dan, if you want to
13 start us off after your comment, if you have anything
14 to say on the new technical analysis requirements,
15 please do so. And then we'll see what the others have
16 to say.

17 MR. SHRUM: You just mentioned the
18 guidance, which I haven't had a chance to really get
19 into. It kind of changes the inadvertent intruder.
20 Is that what I heard you say?

21 MR. GROSSMAN: I would say that we'd offer
22 the flexibility to licensees to use more site-specific
23 scenarios. So maybe let me recouch what I said before.

24 MR. SHRUM: The definition doesn't

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1 though.

2 MR. GROSSMAN: The definition --

3 MR. SHRUM: The definition in the proposed
4 rules is pretty specific of what he does or the person
5 does.

6 MR. GROSSMAN: Right. But if you look at
7 it the definition has not, and it has changed some, I
8 think. I can't remember exactly how. I think we may,
9 I can't remember what we added to the definition.

10 But if you look at the scope of the
11 inadvertent intruder assessment, I think there is where
12 you'll see about what the intruder does when he's
13 onsite. So engages in all activities, which a lot of
14 these are similar to what was done before, but then,
15 or other reasonably foreseeable pursuits that are
16 consistent with activities in and around the site at
17 the time of closure on Slide 24. That's where I think
18 you'll see the scope is changing from kind of
19 assumptions in the past.

20 MR. SHRUM: And then I'd mentioned that
21 before. Okay. Well, we'll probably comment on it,
22 but to me the definition still says the person. It does
23 say might, might occupy, which would give you less than
24 a probability of one. Possibly you could use that

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1 argument.

2 But if, again, as Tom just mentioned, if
3 these are now being sited in areas where people don't
4 live, they're inhospitable to human health or people
5 living there, so you could almost lead that that doesn't
6 need to be done if that's not what's going on at the
7 area right now.

8 But then it still says they would engage
9 in normal activities such as agriculture, dwelling,
10 construction. So that would lead you back to, well,
11 you have to do that analysis anyway. So is it better
12 in here or more detail?

13 MR. GROSSMAN: I don't think the guidance
14 --

15 MR. CAMERON: In here, you mean the
16 regulatory guidance? Yes, okay.

17 MR. GROSSMAN: I don't recall by memory
18 every word in the guidance. But I don't think the
19 guidance will get you to a point where, because no one's
20 living there today that we don't have to do the
21 intruder.

22 MR. SHRUM: Okay. I need to do some work.
23 And to go to the next issue, I don't have anything else.

24 MR. CAMERON: Okay. Anybody on the

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1 requirements for technical analyses, given the fact
2 that they're, at least now, is an inadvertent intruder
3 analysis. Anything on those requirements?

4 (No audible response)

5 MR. CAMERON: Okay. And there's also a
6 bullet on the closure issue, much the same as the last
7 one. Do we have anything else on inadvertent intruder
8 before we go to the audience and the phones?

9 (No audible response)

10 MR. CAMERON: Okay. Let's go to the
11 phones first. Arlene, does anybody on the phone have
12 something to say on inadvertent intruder?

13 OPERATOR: Yes. We have Roger Seitz.
14 Sir, your line is open.

15 MR. SEITZ: Hello. Just a comment. I
16 had a question on the requirement to update the intruder
17 assessment at closure.

18 It's my understanding that the intent is
19 that your intruder assessment is used to develop your
20 waste acceptance criteria. Other than than, I don't
21 understand the purpose for updating the intruder
22 assessment at closure. And I had another question, but
23 I'll start with that.

24 MR. CAMERON: All right.

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1 MR. GROSSMAN: So the waste acceptance
2 criteria would be based on your technical analyses. I
3 would say the full complement of them, not necessarily
4 just the intruder assessment. Although, oftentimes
5 that does drive the waste acceptance criteria. And so
6 in that light, it might be more expansive.

7 We would say, I would also respond that,
8 like, as you learn information as you go through
9 operating the site, about the behavior of the site and
10 the types of waste that you've included, there may be
11 the need for some sort of mitigation at the end if you
12 get to the point at the end, and you've revised your
13 intruder assessment because of the waste streams, that
14 your WAC has changed. And that way you accepted is no
15 longer acceptable.

16 So that's part of the rationale there, is
17 to make sure that we're still protecting the intruder
18 as you move into the institutional control period and
19 then beyond.

20 MR. CAMERON: Any comment on that, Roger,
21 before your next question?

22 MR. SEITZ: Yes. I guess I still have the
23 concern. Because if you've done your due diligence,
24 you have agreed upon waste acceptance criteria, I'm not

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1 sure what changes that conclusion. And I think it's
2 a fundamental question about this grandfathering or not
3 grandfathering. It fits in that area, probably.

4 MR. CAMERON: Okay. And another
5 question, Roger?

6 MR. SEITZ: Yes. Just two quick
7 comments. One thing on that 61.13, I just wanted to be
8 on record agreeing that, it seems to me that the rule
9 is, you're kind of blurring the lines between what
10 should be a regulation and what should -- guidance or
11 implementation guidance, that kind of thing. I think
12 you're starting to dive into some detail that may not
13 fit with the role of the rule.

14 And I just wanted to comment, I did read
15 the guidance. And I generally like the approach in the
16 guidance where you focused on those scenarios that were
17 considered for Part 61 originally are sufficient and
18 protective. And kind of using those as a starting
19 point seems reasonable to me.

20 MR. CAMERON: Great, thank you. Thank
21 you very much, Roger. Arlene, anybody else?

22 OPERATOR: Sir, our next question comes
23 from Mr. Ralph Andersen. Sir, your line is open.

24 MR. ANDERSEN: Thank you. I guess, to a

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1 certain extent, I'm repeating comments made earlier on
2 the updating of the assessment at closure.

3 But things I'm trying to get my around are,
4 David and Chris, in theory, if you essentially used your
5 performance assessment to bound the waste that would
6 be received at the site, then it strikes me that, in
7 theory, you won't be exceeding that.

8 That is to say, when you reach closure at
9 best you would be right at that point ideally. But more
10 likely than not, you in fact would have received less
11 waste than you had anticipated by the analysis you did.
12 Because the license --

13 (Telephonic interference)

14 MR. CAMERON: Understand.

15 MR. ANDERSEN: What the delta is that
16 you're trying --

17 (Telephonic interference)

18 MR. ANDERSEN: -- closure to go back and
19 redo the analysis.

20 MR. CAMERON: And, Chris, any response to
21 what Ralph just said?

22 MR. GROSSMAN: I'm not quite sure I --

23 MALE PARTICIPANT: You're off.

24 MR. GROSSMAN: Oh. I'm sorry. I just

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1 turned myself off. I'm not quite sure I understood the
2 question. So let me rephrase it, Ralph. And if I got
3 it wrong, you can correct me.

4 So you're saying in the situation where a
5 licensee may use a very conservative amount of waste
6 in their original PA or any of the analyses, and they
7 get to the end, and they take on a lot less than that,
8 what's the need for updating the analysis?

9 MR. ANDERSEN: Yes. In a sense. And,
10 Chris, let me just cite, or even an insight, the purpose
11 of the analysis is to determine what waste streams you
12 can receive, you know, at what levels, and forms and
13 so forth. But when you're all done, in theory, you
14 never received approval to get more than that. So you
15 somehow ended up --

16 (Telephonic interference)

17 MR. GROSSMAN: I would say that what you
18 would need to submit would not necessarily be all that
19 extensive then at the end, unless there was new
20 information along the way about the behavior of the site
21 during your operations that --

22 (Telephonic interference)

23 MR. GROSSMAN: But most likely that would
24 have been folded into updates over time.

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1 MR. ESH: And part, Ralph, part of the
2 issue might be either give a more direct example. When
3 you're in the initial analysis or getting the approval
4 to receive a waste stage, you may have an estimate, say,
5 about your future cover design and what you expect to
6 do with, say, a key parameter like infiltration over
7 time.

8 When you get to closure, you may have an
9 actual cover design or actual cover information and a
10 better estimate of what those infiltration rates may
11 be.

12 That new estimate of the infiltration rate
13 is the type of thing that you would be reflecting in
14 this updated analysis when you get to those up layers,
15 a latter step in the process.

16 So that's just an example of the type of
17 thing we were thinking of. It could be a change in
18 inventory. But as you note, you know, if you're doing
19 a good job with your waste acceptance in your initial
20 analysis, the change in inventory thing shouldn't get
21 you. It shouldn't be different. It should always be
22 less than what you had analyzed.

23 Don't laugh. There is, some new
24 information came to light that the inventory was

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1 different than what you thought you received. That
2 would be a situation where the inventory could be
3 higher.

4 But that should be unlikely. It should be
5 more on the technical side of things where maybe you
6 have additional information at closure that's
7 different than what you analyzed initially.

8 MR. CAMERON: Okay.

9 MR. ANDERSEN: Okay. Well, then let me
10 suggest then that maybe the approach should also
11 include just doing what I would view as a sensitivity
12 analysis to see if there's any need to really update
13 the assessment, rather than just simply requiring --
14 and maybe you just have to be inclusive, where somebody
15 would simply look at the previous assessment and say,
16 you know, there's nothing that would substantially
17 diminish the conservatism that's built into my original
18 assessment, rather than having to go forth and do a
19 whole new assessment. Maybe that's implicit. But
20 that would be my comment.

21 MR. ESH: Okay. Sure, we understand your
22 comment. Thank you.

23 MR. CAMERON: Okay. Thank you, Ralph.
24 Arlene, anybody else?

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1 OPERATOR: Yes, sir. Bill Dornsife.

2 MR. CAMERON: Bill Dornsife. All right.

3 Hi, Bill.

4 MR. DORNSIFE: You all know me, don't you?

5 (Laughter)

6 MR. DORNSIFE: I have two comments on the
7 previous section. I joined late, because being
8 retired now I don't get up early, even for NRC.

9 MR. CAMERON: Well, that's more
10 information than we need, Bill.

11 (Laughter)

12 MR. DORNSIFE: From what I understand,
13 there really is not a lot of specificity in either the
14 rule or the guidance on the model that you need to use
15 to do your performance assessment.

16 I have a concern with that, because most,
17 for example, most of the models that are out there don't
18 look at diffusion, particularly upward diffusion of
19 mobile radionuclides.

20 And that can be a major pathway in an arid
21 site, particularly in terms of the intruder analysis.
22 So, you know, go back and use RESRAD, that doesn't look
23 at diffusions. So, you know, it may not capture all
24 the potential pathways.

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1 And my second comment is, as a former
2 regulator, I would want to have periodic updates of the
3 performance assessment. I realize that it's presumed
4 you do one when you renew the license. But, well,
5 things change over time. And, you know, a periodic
6 update would be important.

7 I don't think of that as being regulation.
8 But I think regulators ought to be very sensitive to
9 having a performance assessment management plan that
10 would essentially do that.

11 MR. CAMERON: Thanks, Bill. And Larry
12 Camper has something to say about your remarks. Larry?

13 MR. CAMPER: We're glad you're up, Bill.
14 John, I think Bill's arguing for an additional
15 paragraph or two.

16 But I do think that, on Bill's point, one
17 of the things with regards to the analysis at site
18 closure, just as we are having this discussion today,
19 I think all of us would agree if one goes back and looks
20 at the technical analyses set forth in 61.12 or 61.13,
21 the sophistication and the overall enhancement of the
22 performance assessment process has grown and changed
23 dramatically over years.

24 And I dare say that it's fair to say that

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1 a performance assessment that was done today using
2 existing modeling techniques, et cetera, et cetera, is
3 significantly different than was done when one opened
4 a site many, many years ago, using 61.12 and 61.13. So
5 that was part of the philosophy. I'm sorry.

6 (Off the record comments)

7 MR. CAMERON: Okay. Bill, thank you very
8 much. Arlene, is anybody else on this issue?

9 OPERATOR: Yes, sir. Our last question
10 comes from Mr. Paul Lohaus. Sir, your line is open.

11 MR. LOHAUS: Hi, Paul Lohaus here. I
12 don't really have a question, but I did want to comment,
13 maybe provide some perspective on the need for a
14 site-specific intruder analysis.

15 One of the assumptions, as was discussed
16 in developing the current classification system, is
17 that an inadvertent intruder would be unlikely.

18 But in the unlikely event that the
19 institutional controls, both active and passive, were
20 to fail, we wanted to make sure that if someone did enter
21 the site and contact the waste, that that inadvertent
22 intruder would be protected.

23 So what was done is there were intruder
24 analyses that were conducted that developed

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1 concentration limits for the classification system
2 that would ensure that, should an individual enter the
3 site at some point in the future, that individual would
4 be adequately protected.

5 And we put a performance objective in to
6 ensure that the inadvertent intruder would be
7 protected. But we did not include a requirement to do
8 a site-specific intruder analysis, because the waste
9 classification system coupled with the waste form and
10 the requirements on disposal of the different classes
11 would ensure adequate protection of the inadvertent
12 intruder.

13 And I may not have this right, but it seems
14 like, in the effort to address new waste forms, the
15 larger quantities of depleted uranium and the blended
16 wastes, the requirements within 61.58 sort of seem to
17 be passed over.

18 Because those requirements were
19 specifically added to try and look to the future so
20 that, as new waste streams came, you know, sort of came
21 into existence, there was a mechanism to address those
22 from the standpoint of classification and ensure that
23 there was continued adequate protection of the
24 inadvertent intruder.

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1 So it seems like in addressing depleted
2 uranium, all of the waste streams are now subsumed in
3 the need to do a site-specific intruder analysis.

4 And I'm not certain what a good alternative
5 would be, but that does trouble me some. Because the
6 whole purpose of the classification system was to
7 negate the need for doing site-specific intruder
8 analyses and to make sure that the classification
9 system was uniformly applied to all waste generators
10 across the nation.

11 MR. CAMERON: Okay.

12 MR. CAMPER: Thank you very much.

13 MR. CAMERON: Thanks, Paul. We have one
14 comment here or a question in the audience. Linda?

15 MS. SATORA: Thank you. Linda Satora,
16 DOE. So I just wanted to point out, it's rare that I
17 agree completely with Bill Dornsife, but today I do.

18 One concept that -- I haven't made it
19 through the whole order, and I haven't even started on
20 that order, and you guys have a regulation. I haven't
21 even started on the guidance. So I apologize in case
22 this was mentioned.

23 You know, at least the Department of Energy
24 view, and you don't have to accept our view, but we

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1 believe that the performance assessment is an iterative
2 document that changes regularly.

3 And so, you know, depending upon new
4 information and new waste streams that you didn't
5 anticipate originally, so potentially it impacts your,
6 you know, your waste acceptance criteria changes over
7 time which is recognized in failure regulation. But
8 when that happens, it could require an update to the
9 performance assessment.

10 So we would encourage that it not actually
11 be just in guidance, if that is where it is. You might
12 want to add a requirement that indicates that as new
13 information is found, and you don't necessarily have
14 to do a whole new PA. In fact, what the Department of
15 Energy does is something called a special analysis,
16 which is kind of like a mini-PA.

17 And those are actually reviewed as a
18 regulatory document, and we consider it a modification
19 to the original PA.

20 So it's not just -- we have two levels. We
21 have one like a screening one called an unreviewed
22 disposal question evaluation which, at the end of that,
23 if you do it and they say there's no change, you're done.

24 But if there is a change to the performance

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1 assessment, then that is an update. And I just wanted
2 to offer that as a suggestion, that that is an option.

3 And it keeps it from being a very expensive
4 new PA which, you know, is typically, in the DOE world,
5 approximately \$2 million to \$3 million for a PA.

6 But the point being, at some point you will
7 have to do your whole new PA. Because there will be,
8 we consider, enough new information to consider doing
9 that because of just new information. But anyway, that
10 was my thought.

11 MR. CAMERON: Okay, good. Thanks, Linda.
12 And I see Chris Grossman nodding his head,
13 affirmatively. I'm sure David and Chris are familiar
14 with the DOE approach of the special analysis. But
15 thank you for bringing that up.

16 And now we're going to go to our next topic.
17 And there is only three substantive slides here,
18 although the first line is it's a very complex issue,
19 protective assurance analysis. And is that you,
20 David?

21 MR. ESH: It is me.

22 MR. CAMERON: Okay.

23 MR. ESH: Sorry, it is me. This slide,
24 besides the title, is the same as the slide from the

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1 technical -- or the analysis time frames. So I'm not
2 going to spend much time on this, only to say, of course,
3 this is the second tier of the overall approach that
4 we've proposed for analysis time frames. So we can go
5 to the next slide, please.

6 So on Slide 30, this is the text for the
7 performance objective. The way that we've structured
8 the regulation now is the time frames are specified in
9 the definition section. And then the performance
10 objectives just reference those definitions.

11 So now you have 61.41 A, B and C, A being
12 for the compliance period, B being for the protective
13 assurance period and C being for the performance
14 period, if applicable.

15 The key thing for you to note, I'd say, on
16 this protective assurance analysis time frame is, as
17 I stated in my opening remarks, this is structured, I
18 would say, as an optimization process where your target
19 is to minimize.

20 So it's similar to ALARA. The Commission,
21 because we don't have a dose limit, per se, for this
22 time frame, we have, I'd say, an objective function for
23 the optimization. We didn't use the ALARA language,
24 because the ALARA language requires a dose limit.

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1 But what we have here is this language,
2 "The annual dose established on the license shall be
3 below five millisieverts, 500 millirems, or to a level
4 that is supported as reasonably achievable based on
5 technological and economic considerations," and so on
6 and so forth.

7 So the idea is that, for this second tier
8 of the analysis, they will try to reduce things as much
9 as you can. And you'll provide an argument for how much
10 you've reduced them, bottom line. Conceptually,
11 that's the way it works.

12 Okay. So the next slide please. This is
13 a diagram from the guidance document, Figure 61. And
14 this is one approach that we put in there that the staff
15 would find acceptable to go about this process where
16 we defined different tiers with levels zero through
17 three here and some dose numbers on there.

18 But basically, depending where you are on
19 this peer monitor, on this scale, your level of effort
20 increases for your analysis. So we're scaling the
21 required complexity of analysis with the risk.

22 As the risk gets higher, analysis is going
23 to be more complex. As risk gets lower, analysis can
24 be simple, so simple that if you are in Level 0, your

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1 analysis is basically done. You say, I'm a few
2 millirem, I don't need to do anything. And so we're
3 kind of saying, yes, we agree. If you're a few
4 millirem, you don't need to do anything.

5 We need to demonstrate if you're, you know,
6 below a few millirem and a lot of those numbers are
7 reliable, but beyond that you don't have to make any
8 sort of argument. So that's conceptually what we did
9 for this protective assurance analysis period.

10 We realize this is new from what you've
11 previously seen. So you might have a lot of comment
12 on it. You might not have it now, because you might
13 need to digest it, both in terms of the statement of
14 consideration, the rule text and the guidance document
15 before you can formulate those. But we did want to talk
16 with you about it and get your insights.

17 So on the next slide, on Slide 32, what
18 we're seeking feedback on is, overall, this protective
19 assurance analysis requirements and this concept using
20 the optimization type approach with the minimization
21 target.

22 And what we recommend in the guidance
23 document, it's not in the regulation, is the easy way
24 to do this is just to extend your performance assessment

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1 into your assessment to this time frame and use those
2 doses you estimate from it as part of this optimization
3 argument or approach.

4 You can do something else. You could make
5 an argument based on the technologies you've employed,
6 and how effective they are and what else might be
7 available. You know, that might be a way to argue that
8 you've minimized to the extent possible.

9 But anyway, those are the -- oh, and the
10 last one, the risk-based discounting. That's probably
11 pretty key. So, you know, we wanted to get out of this
12 potential loop of the time-based discounting issue,
13 because nobody can really agree to that at all, it
14 seems.

15 And there's lots of good arguments both
16 ways. But we thought this was something that maybe
17 people could agree to, internally we agreed to it, but
18 this idea that your level of effort should be
19 commensurate with the risk. And that's what we have
20 tried to lay out here for the protective assurance
21 analysis.

22 MR. CAMERON: Okay, great. Let's go high
23 level on the concept and, I think, David's last remark
24 about commensurate with risk was pretty important.

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1 Tom, do you have anything on this?

2 MR. MAGETTE: Just one thing. I think you
3 might have answered it, David. But I want to make sure
4 I heard what you said right, that essentially, because
5 my question was both of the 61.42 paragraphs in the
6 compliance period and the protective assurance period
7 refer back to 61.13 (a). So in fact, the guidance says
8 all you have to do is really extend the clock. You
9 don't have to look at new FEPS, you don't have to redo,
10 just project further out.

11 MR. ESH: Right. We wanted to make this,
12 we wanted to have a long-term analysis component to it.
13 But we didn't want it to be overly burdensome. So we
14 said one way you could that is to extend your
15 performance assessment to your assessment. Yes.

16 MR. CAMERON: Okay. Anybody else,
17 Charles, anything from you?

18 MR. MAGUIRE: We did, on the WCS site, we
19 did use the 10,000 year protective assurance analysis
20 as part of the complete performance review on the site.
21 And I think you're going to talk about non-10,000 years
22 next.

23 MR. ESH: Right.

24 MR. MAGUIRE: We did that too.

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1 MR. CAMERON: John Greeves?

2 MR. GREEVES: I'm still absorbing now, but
3 so we're talking about the performance assessment
4 period. And it said, I can't get clear. You weren't
5 calling the 500 a limit, right?

6 So I think there's a little tension about
7 that. And I think that's part of your question, should
8 it be a limit or should it not be a limit. And I like
9 the number. I think it gives you a sense of safety
10 between 1,000 and 10,000. So I like the metric. I
11 just don't know how the words come out. Is it a limit?
12 Is it a goal? I think that needs some important
13 discussion.

14 As a former regulator, I'm comfortable
15 with limits. I know how to them. Goals and minimize
16 are troubling words to me.

17 MR. ESH: Right. And we looked at that.
18 There are a number of programs with other agencies that
19 they use those sorts of approaches. So this wouldn't
20 be a unique approach. It would be unique in that it's
21 showing up in low level waste. But that, conceptually,
22 trying to, you know, use different types of things, best
23 available technology and all those sorts of things show
24 up in regulatory space.

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1 MR. GREEVES: I subscribe to, you know,
2 extending the PA analysis and the intruder analysis to
3 evaluate this. I'm just not sure how a regulator would
4 implement a concept that isn't based on a limit.
5 That's all.

6 And I'll go back to something I said
7 earlier on today, I almost looked at this as being the
8 second tier just at the peak dose, wherever that is.
9 It's a concept that I would subscribe to.

10 MR. ESH: Yes. We received pretty
11 specific direction from the Commission on this area.
12 So that's what we implemented, of course.

13 MR. GREEVES: And I read the, the
14 Commission's given you direction a number of times.
15 And one time they said two tier, and another time they
16 said explore three tier on time outs. So I think it's
17 fair for me or anybody to say we like the two tier, or
18 I like the two tier concept as feedback to you.

19 MR. ESH: Right. And we appreciate the
20 comment. And other --

21 (Simultaneous speaking)

22 MR. ESH: I think you made the comment
23 about, you know, should there be a dose limit and what
24 should it be? That's a good comment to make too if

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1 people have feedback on that.

2 Because the way we did it is basically this
3 tier does not have a dose limit, per se. It has an
4 optimization target. So that provides a lot of
5 flexibility, and it'll also provide, I'm sure, a lot of
6 aggravation for some stakeholders.

7 Because, you know, people like the
8 specificity of a number and for whatever reason. And
9 the ambiguity of something that's less firm causes a lot
10 of heartburn for people, which I understand. But
11 that's what we implemented here. And, you know, we
12 appreciate your comments on it.

13 MR. CAMERON: Okay. I'm glad that you
14 made that clear, direction from the Commission. And,
15 Tom?

16 MR. MAGETTE: One follow-up question,
17 David, on the point I just raised. Maybe it's a comment
18 as well. In 61.13 (a)(4), it talks about the potential
19 for other FEPS if compelling scientific information
20 exists.

21 You know, given that there may be people
22 that succeed you but lack your imminent reasonableness,
23 and that we may have to deal with state regulators who
24 have different viewpoints, that compelling scientific

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1 kind of troubles me. Do you elaborate on that in
2 guidance?

3 And I guess my question would be, you know,
4 maybe one thing you could say in guidance, if you don't,
5 is that if you're extrapolating, you're okay. You
6 might choose to do something different. But
7 extrapolating would always be okay.

8 Because there's lots of other words around
9 the rule that come from the SRM about, you know, the
10 current conditions and not trying to do the crystal ball
11 analysis for the future. And I think maybe this is
12 another way of trying to say that, but maybe if you stick
13 to something that's a little bit more ironclad that says
14 you don't have to project.

15 If you have a reason, as an applicant, to
16 project, then the regulator could evaluate that. But
17 you're always okay by straight-lining.

18 MR. CAMERON: And Larry has a comment, I
19 think.

20 MR. CAMPER: Yes. Going back to John's
21 point about, and then what David had to say in response
22 in terms of the Commission direction, I think for those
23 out there who have not spent all their time reading this
24 or might not be quite as familiar as all of us in the

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1 room, let me read what the Commission specifically said
2 on this point.

3 "A further protective assurance analysis
4 should be performed for the period from the end of the
5 compliance period through 10,000 years. Given the
6 significant uncertainties inherent in these long time
7 frames and to assure a reasonable analysis, the
8 performance assessment should reflect changes in
9 features, events and processes of the natural
10 environment such as climatology, geology and
11 geomorphology only if scientific information
12 compelling such changes from the compliance period is
13 available.

14 "In general, the analysis should strive to
15 minimize radiation dose with the goal of keeping doses
16 below a 500 millirem per year analytical threshold. The
17 radiation doses should be reduced to a level that is
18 reasonably achievable based upon technological and
19 economic considerations." So clearly they had a
20 constraint, if you will, in mind.

21 MR. CAMERON: Okay. And you look
22 perplexed by it, what Larry just read. Or am I
23 completely incorrect?

24 MR. SHRUM: No. No, Tom and I are having

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1 a discussion. I don't have a problem with this other
2 than the way it's written. So I was going to give an
3 example, but I don't think it would go over very well,
4 about how you deal with your children. So let's not go
5 there.

6 But it does say reflect new features. And
7 it starts off as a you have to go do this type of thing,
8 as opposed to what you just read which is a don't go do
9 this thing unless there's some compelling reason. And
10 that's, I think, my reality is it's a different approach
11 to this issue.

12 MR. ESH: And just to clarify, this issue
13 is about the scope of the analysis for the longer period
14 compared to the shorter period and how you ensure it's
15 appropriate, basically.

16 What's essentially recommended is just you
17 take the scope from your original analysis and you
18 extend it. If you have information that suggests you
19 should supplement it or modify it, but all means you
20 should use that information and supplement it or modify
21 it. That's the bottom line approach to this whole
22 analysis, what we're trying to achieve.

23 If there are language corrections or
24 suggestions that you have, please make those. And

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1 we'll look at them and see if there's some modifications
2 that make it cleaner or more understandable, what you're
3 supposed to do for this analysis.

4 One issue that I would point out is that
5 many of the features, events and processes that are
6 applicable to the compliance period are, they may not
7 have an impact for the compliance period because of
8 their magnitude, frequency, what not during that first
9 1,000 years.

10 But they may have an impact during that
11 longer time frame, say, you know, effluvial erosion, or
12 aeolian erosion or something. It might not be
13 significant for 1,000 years, but it might become
14 significant for 10,000 years.

15 So just because something was not
16 significant for the first 1,000 years doesn't mean it's
17 not supposed to part of the scope of the analysis for
18 that second time frame, just to clarify that. That's
19 the way we've written it right now. You can feel free,
20 of course, to comment on that.

21 MR. GROSSMAN: And I believe we do, in
22 Chapter 2 of the guidance, elaborate quite a bit on the
23 FEPS process and some of these issues in particular. So
24 that would be a good place to look as well.

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1 MR. CAMERON: Okay. Arlene, do we have
2 anybody on this particular topic?

3 OPERATOR: Sir, we have Roger. Roger,
4 your line is open.

5 MR. SEITZ: Thank you. Could you put
6 Slide 30 up for me?

7 As written, I see two separate requirements
8 there. First sentence has a requirement that you have
9 to minimize releases. The second sentence says that
10 you have a dose and you're maintaining a dose at a level
11 of 500 or less or reasonably attainable.

12 I really like the second sentence. But I
13 think, take a close look at that, and are you implying
14 there's two separate requirements there?

15 And just in general, I have a concern with
16 the use of the word minimize and how you would actually
17 meet that. I understand that you'd written some
18 guidance on that. But in the rule, if you say minimize,
19 I'm concerned how that's interpreted.

20 MR. CAMERON: So, Roger, are you saying
21 that, is the second sentence just elaborating on the
22 general concept in the first sentence? Or are there two
23 requirements?

24 MR. SEITZ: As written, I read two separate

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1 requirements.

2 MR. CAMERON: Okay. Dave, Chris, any
3 clarification on that? Are there two requirements in
4 that particular paragraph or only one? Or John is
5 saying three requirements, there's three requirements.
6 Okay.

7 MR. SEITZ: I like the second sentence. I
8 think that could capture it.

9 MR. ESH: Right. Well I think if you look
10 at the existing regulation, under 61.41, we ended up
11 with what was a extremely long sentence in here when we
12 wrote this. And so we tried to break it up into multiple
13 sentences to make it read better.

14 But we were shooting for the same approach
15 that is in the existing 61.41. So I understand your
16 comment. We will take a look at it.

17 MR. CAMERON: And, John, on this issue, go
18 ahead.

19 MR. TAUXE: And I think I also read, it may
20 have been in the guidance, about maintaining releases,
21 talking about releases instead of doses. And that made
22 me think of EPA's 40 CFR 191. Where there are
23 individual protection requirements and there are
24 containment requirements.

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1 And we talk about releases. That's sort of
2 a containment requirement issue that I don't think that
3 was intended by any of this.

4 So you might just do a global search on
5 releases and see if -- unless that was part of the
6 intent. In which case it needs to be brought out into
7 its own piece a little bit more. But there's the
8 releases versus doses question.

9 And then the one, I've had a long standing
10 issue with this and discussed it back in our 2013
11 comments, that the title of that section is, Protection
12 of the General Population. And yet in the text it's,
13 Protection of any member of the public.

14 Those are different concepts. The general
15 population, which is an appropriate one I think, is
16 asking for a population dose assessment. Which, you
17 know, comes under ALARA and all that but any member of
18 the public is picking out, perhaps your maximally
19 exposed individual or something like that. That's a
20 very different concept from general population. So --

21 MR. ESH: Yes.

22 MR. TAUXE: -- I think that is still in this
23 new language. And I think that's still a problem.

24 MR. ESH: Right. And we understood that

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1 comment before. Just to let you know, we use the
2 average member, the critical group concept, to define
3 that member of the public that you're talking about.

4 And I think that the argument that's put
5 forth is that by protecting the member of the public,
6 you're protecting the general population. So it's --
7 I understand --

8 MR. TAUXE: That's the other third one, is
9 an average member of the critical group. Because --

10 MR. ESH: Every member --

11 MR. TAUXE: -- that's not any member of the
12 public.

13 MR. ESH: That's the description and
14 language that we use to say, who that member of the
15 public is. That's the dose construct that we're using
16 to define that any member of the public.

17 We're basically said, if you use this
18 average number of the critical group, that's what we
19 deem sufficient to demonstrate the protected, any
20 member of the public.

21 MR. TAUXE: Okay. I guess if I'm reading
22 it from the outside it says, any member of the public.
23 So I would consider infants.

24 MR. ESH: Right.

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1 MR. TAUXE: And --

2 MR. ESH: So when we receive that --

3 (Simultaneous speaking)

4 MR. ESH: -- yes, we received those
5 comments that we need to be --

6 MR. TAUXE: So --

7 MR. ESH: -- we need to have --

8 MR. TAUXE: -- I don't know if there's a --
9 if that indicates you might have a language change in
10 order for that just to help clarify. You could say
11 member of the critical group.

12 MR. ESH: Right.

13 MR. TAUXE: Members of the critical group.

14 MR. ESH: Okay.

15 MR. TAUXE: Instead of any member of the
16 public.

17 MR. ESH: Yes, I understand those
18 comments.

19 MR. TAUXE: Okay.

20 MR. CAMERON: Okay. Roger, thank you for
21 that comment.

22 MR. ESH: I'm sorry, one thing, Chip. On
23 61.41, the existing 61.41, if you look at it now, John,
24 it starts out, concentrations of radioactive materials

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1 which may be released to the general environment, and
2 then it says stuff, and then results in a dose.

3 So it's typing the two together. It's
4 basically saying that releases that turn into dose is
5 what you're trying to deal with.

6 And the same thing now. We're trying to do
7 the same thing. We may have broken it up into a couple
8 sentences that left you with the wrong impression, but
9 we were attempting to do the same thing as the existing
10 requirements.

11 MR. GROSSMAN: And the reason it was
12 written that way is to differentiate between offsite and
13 onsite kind of exposures. So the intruder versus
14 someone who's offsite.

15 MR. CAMERON: Go ahead, Larry.

16 MR. CAMPER: Just one quick point. Going
17 back to Roger's point.

18 You know, the words -- I can see his point.
19 However, you have to keep reading. That annual dose
20 established on a license shall be below, shall be below.
21 That certainly sounds like a limit, doesn't it, John.

22 Or, or a level that is supported and so
23 forth. So you have to keep reading to realize that it's
24 not in fact a requirement or a dose limit.

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1 MR. CAMERON: Okay. Arlene, anybody
2 else?

3 OPERATOR: Yes, sir. Bill Dornsife, sir,
4 your line is open.

5 MR. DORNSIFE: Now I have a problem with
6 the 500. I recognize it's probably based on the
7 uncertainty from a 1,000 to 10,000 years, but I think
8 public will have a problem since it's above the 100 limit
9 for the public.

10 And I can't imagine a good site or a decent
11 site that can't meet 25 millirems out to 10,000 years.
12 There's something wrong with that site.

13 MR. CAMERON: Any reaction to that, David?

14 MR. ESH: No. I mean I understand his
15 comments, yes. And we've heard similar comments
16 leading up to this point.

17 MR. CAMERON: Okay.

18 MR. ESH: So that's definitely information
19 we want to take into consideration.

20 MR. CAMERON: Okay, thanks, Bill.
21 Arlene, anybody else?

22 OPERATOR: At this time, sir, there are no
23 further questions or comments in the queue.

24 MR. CAMERON: Thank you. Thank you very

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1 much. Let's do this next performance period analysis
2 and then see where we are in terms of time and
3 predictions and what we need to do then.

4 And this, David, this is you? Or is it --

5 MR. ESH: This is me.

6 MR. CAMERON: David, okay. This is Slide
7 34.

8 MR. ESH: Correct. So the performance --
9 there you go. The performance period analysis is the
10 third tier in the analysis time frames.

11 It's applicable to times after 10,000
12 years. It applies only if you have sufficient waste,
13 and that's going to be on the next slide.

14 The concentrations are based on the
15 facility average using a sum of fractions approach.
16 And it's designed to assess how the disposal site limits
17 the long-term impacts.

18 It does not have a dose limit target
19 associated with it. It's basically, the way it was
20 designed was to be freedom of information or truth of
21 disclosure type of thing.

22 Basically, based on the waste I took in the
23 site I have, what do I think is going to happen and why
24 do I think that's okay.

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1 So it's qualitative, it does not have a dose
2 limit. There may be -- it's a qualitative decision.
3 This is what people stumble around.

4 But it may be based on quantitative work.
5 And it may also be based on qualitative work. If, for
6 instance, you were really close to the Table A values,
7 just slightly over, you might be able to just make a word
8 based argument as to why you think you've meet these
9 criteria without doing any, you know, special modeling
10 for instance.

11 But anyway, so that's the way the
12 performance period is constructed. It's intended to
13 provide the information to all stakeholders the best you
14 can, as to what you think is going to happen for these
15 very long time frames.

16 And then on Slide 35, as we discussed
17 earlier, John had some good comments about this table,
18 both in terms of units and the use of the superscripts
19 or the footnotes.

20 Yes, I already ran into that in the existing
21 regulation. I believe there's a superscript. And
22 somebody had, when they copied the table over, it
23 lowered the superscript and so they were using the wrong
24 number for the concentrations. So yes, that's a good

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1 practical comment about the table.

2 But conceptually what we intended to do, as
3 we discussed earlier, is the Table A values. Define
4 when you need to do that analysis or not.

5 So if you're below, then you don't need to
6 do the analysis. If you're above, then you would need
7 to do the analysis in some form.

8 If we go to the next Slide, 36, this then
9 talks about what the analysis are. In E here, I'm not
10 going to read that for you.

11 And then in Slide 37, this is an example
12 from the guidance document. It's basically a table of
13 long-lived isotopes.

14 Where we tried to do things like this where
15 maybe if you're a traditional low-level waste site and
16 this would be kind of new to you. Especially this
17 overall analysis.

18 So what is -- what would I expect to maybe
19 see as a long-lived isotope or if I'm in agreement state
20 regulator and somebody comes in and they say, well I have
21 isotopes A, B and C, you might be able to use this table
22 and say, okay, what about all these other guys here, you
23 know.

24 There's a number of those that

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1 traditionally show up in low-level waste performance
2 assessment inventories. You know, why do you have
3 these three but you're missing the other 13. And so
4 that sort of thing.

5 The tools like that, we attempted to put in
6 the guidance document to help people with their, both
7 their analysis and/or if you're a regulator with your
8 view.

9 Okay, so on Slide 38 we're seeking feedback
10 on this overall approach to the performance period
11 analysis. Then the use of the Class A values is a
12 trigger point for the requirements, whether they need
13 to be higher or lower, does it seem reasonable.

14 The averaging approach to make it simple.
15 We're using these global volumes to get out of this issue
16 of, well I have one package that is very concentrated
17 and I have a bunch that are not very concentrated, so
18 does that mean I have to do this analysis. Well using
19 this global average gets you out of that sort of
20 complicated issue.

21 The metric, I would say for the performance
22 period, which I didn't read there. It's using a little
23 bit different language.

24 It's minimization to the extent reasonably

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1 achievable. So -- but the bottom line is you're going
2 to describe your design and your system and how it works
3 and how it's limiting the impacts to the extent that you
4 are able to achieve.

5 And so the requirement is to identify the
6 things that contribute to limiting the long-term
7 impacts.

8 MR. CAMERON: Okay, thank you. Thank you,
9 David. Let's start with the approach. And I think
10 we'll sweep everything in from there.

11 Who all of you around the table think about
12 this approach to performance period analysis? Hey,
13 Charles, go ahead.

14 MR. MAGUIRE: Well when we looked at the
15 WCS site, because there was going to be an inventory of
16 carbon 14, we did a 50,000 year performance analysis as
17 WCS presented us with a license agreement that would
18 allow large quantified with depleted uranium at the
19 site.

20 We wrote the performance model out a
21 million years to look at that to see what was changing.

22 I think the nature of the waste streams
23 publish and dictate whether or not this would be, number
24 one, interested, number two, important. I can tell you

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1 there were fascinating days around my conference table
2 trying to look at what a million year low model might
3 be.

4 But the innocent pardon for us to exercise,
5 I call it embracing our inner geek, it was important
6 enough for us to exercise our thoughts there. Mostly
7 to discover what we needed to require currently, to
8 allow for the disposal.

9 To just think about all of those things
10 that, you know, were so far out there. You don't know
11 whether they're going to be true or not true.

12 But I haven't really decided, in my
13 experience, whether the engineering drives the model or
14 the model drives the engineering. But they certainly
15 both are in the vehicle together, if you will.

16 And so I think this part of it is important.
17 Maybe not so much in terms of the regulatory benefit of
18 having this notion that we're going to minimize things
19 out there, as it is to the regulatory aspect of forcing
20 you to look at what's going on down inside that cell.

21 MR. CAMERON: So that's the important part
22 of it rather than the minimization?

23 MR. MAGUIRE: Yes.

24 MR. CAMERON: That's fine.

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1 MR. MAGUIRE: Not so much a target number
2 there. And so, you know, you certainly provided that
3 flexibility of the role.

4 But I think the role that it plays is really
5 to drive some decisions in terms of the engineering that
6 comes into play. The health physicist that comes into
7 play, the geology that comes into play.

8 It forces you to embrace your inner geek.
9 I think if you're going to realistically deal with
10 something out past 10,000 year.

11 MR. CAMERON: Okay. Thanks, Charles.
12 Anybody else on this particular topic? John.

13 MR. TAUXE: I think the performance period
14 is critical to consider. The level of effort in the
15 analysis is going to vary a lot from site to site.

16 And I think that important sort of first
17 tier look at it is understand what you can say about
18 extremely long time periods or deep time or whatever you
19 want to call it. And then also understand what you
20 can't.

21 You had the diagram up earlier from the NRC
22 paper on uncertainties and how they, you know, balloon.
23 But there are something's that are certain in the
24 long-term.

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1 As a geologist, there's some geological
2 certainties at some sites, you know, at NRC. So I can
3 say, Los Alamos.

4 It is certain that probably the mesas that
5 are containing radioactive waste now, will ultimately
6 fail. They will all disappear. So it's in the very
7 long-term, it's a geologically unstable site.

8 Now, then there's the question, does it
9 matter or not and that sort of thing. But that's at
10 least a certainty you can nail down.

11 There are other sites where, we'll we don't
12 know yet. In two millions years it may look even better
13 than it looks now.

14 Radioactive decay and end-growth, which
15 comes back to this Table 7.2, that's fairly certain.
16 The physics behind what is going on there is certain.

17 Now where those things will be in the world
18 is potentially highly uncertain. But it's useful to go
19 through the exercise, at least to identify what's
20 certain and what's uncertain.

21 And I guess ultimately it's useful, for my
22 perspective, to distinguish one site from another site.
23 And decide, is this something that's going to be a
24 problem here or well maybe it happens and maybe it's

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1 really not a problem in the long run.

2 But we ought to at least look at it to see
3 if there are real problems out there. So.

4 MR. CAMERON: Great. John?

5 MR. GREEVES: Just probably repeating
6 myself, but anyhow. A point mentioned today is I think
7 what the proposal is is over-prescriptive. And I enjoy
8 seeing less of that.

9 I just point to what Charles told us about
10 the facility in Texas. They, on their own, they looked
11 at carbon 14 at 50,000 years and then they say, oh, okay,
12 depleted uranium, it's on my plate.

13 So a regulator will look at, they don't need
14 this level of language in the rule to cause them to do
15 those kind of analysis. Which is basically an
16 extension of the PA and the intruder analysis to make
17 sure, for this specific site, I'm safe for the
18 compliance period and I'm safe out to, I'll call it peak
19 dose.

20 The specificity I think in the proposal you
21 have now is just too much to me. It's too prescriptive.

22 So I would just invite you to think about
23 removing some of that in the guidance space. So just
24 before -- and I've heard my colleagues, some of which

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1 point out, hey, I may be like 61.13(e) if it helps me
2 fence something off.

3 But I heard Paul Lohaus say earlier, when
4 they tried to decide on what to leave in the rule, his
5 metric was, is it something I really need to support the
6 performance objectives. And fencing something off is
7 -- doesn't fit my module of those lines.

8 That prescriptiveness, isn't helping me
9 meet a performance objective. It's, to me, maybe
10 better in guidance space. So it's a debatable subject.

11 So I just share that with you and we'll see
12 where it goes. And I'm listening and maybe two meetings
13 from now I'll have a, you know, a different comment, but
14 thank you.

15 MR. ESH: Just one clarification. If you
16 look at the performance objectives now, as they've been
17 rewritten, 61, all of them, A, B and C, 61.41 A, B, they
18 have a component for each tier.

19 So I guess what I'm trying to understand
20 from you is that you think the performance period
21 information is too prescriptive, but yet the
22 requirements that we put in place are only, I think
23 there's one in 61.13, basically to do the performance
24 period analysis. It doesn't say much else about it.

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1 All that is in guidance and it's reflecting
2 what is now part of the new performance objective. So
3 are you saying to remove the requirement that says you
4 need to do the analysis or that you shouldn't have that
5 part of the tier or both or neither? I don't --

6 MR. GREEVES: All right, I'll go back to
7 what I said earlier. I'm more comfortable with the two
8 tier approach. I hear people saying I can live with
9 three tier approach.

10 But I think it's simpler. As I said
11 earlier, it shows how you meet safety for the compliance
12 period. And then you, we have said, just update the
13 performance assessment in the intruder analysis at the
14 peak, and it would capture the rest of the safety issues.

15 I agreed with the metrics you're putting
16 into the performance objectives, I don't think that the
17 prescriptiveness that's elsewhere, small example was at
18 61.13(e), is needed.

19 It just -- I think there are some, what I'll
20 call land mines, in some of these places. That if you
21 get into a litigative environment, this extensive
22 prescriptiveness can cause you difficulties in terms of
23 addressing it.

24 MR. CAMERON: All right.

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1 MR. GREEVES: I'll try and do better in my
2 written comments.

3 MR. CAMERON: No, I think you're basically
4 getting your point across, John. Arlene, is there
5 anybody in the phone that wants to comment on this
6 particular topic?

7 OPERATOR: Yes, sir, there are. Mr. Bill
8 Dornsife. Sir, your line is open.

9 MR. DORNSIFE: Yes, I think there ought to
10 be a statement somewhere in the guidance. But if you
11 have a robust performance assessment bottled that
12 includes things like inter-climate, changing site
13 characteristics, all of those are taken into account.

14 And you still need the Part 61 performance
15 objective to 25 millirem for the public. That would be
16 the public and the 500 millirem for the intruder, that's
17 all you have to do.

18 MR. ESH: Yes, Bill, this is Dave. Yes, I
19 understand that comment. And I think that was our
20 intent if we didn't explicitly say it. So we'll look
21 at the guidance and see if we didn't make that point
22 clear.

23 MR. DORNSIFE: Okay.

24 MR. CAMERON: Great. And, Arlene,

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1 anybody else?

2 OPERATOR: Yes, sir. Mr. Ralph Andersen,
3 sir, your line is open.

4 MR. ANDERSEN: Yes, just a simple comment,
5 I hope. In regards to this particular assessment, you
6 know, it strikes me that you have a member of
7 stakeholders outside the regulatory, the licensee or
8 the rest of those technically inclined people, that are
9 going to be somewhat mystified by dose level.

10 And I would suggest that when you go to a
11 final rule, I'm assuming that you retain this
12 requirement, that you provide some reference that the
13 stakeholders can refer to that makes it very clear, why
14 is this particular assessment being done and how is this
15 information intended to be used in the decision to
16 either license, renew a license or allow closure.

17 Because I think that's where people are
18 going to be struggling. Is to understand how the output
19 of this evaluation ultimately is going to influence some
20 decision. Because I don't think that's abundantly
21 clear.

22 MR. CAMERON: So you think it needs more
23 context, Ralph? Perhaps in the supplementary
24 information.

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1 MR. ANDERSEN: Yes, that could be it.
2 It's just that I believe the state regulators in the
3 future are going to need something that they can point
4 to that puts a box around this.

5 Otherwise I just think it's going to be left
6 as very open-ended as to whether the information to
7 actually influence an ultimate decision by the
8 regulator.

9 MR. CAMERON: Okay, thank you. Anybody
10 else, Arlene?

11 OPERATOR: At that time, sir, there's no
12 questions or comments in the queue.

13 MR. CAMERON: Okay, thank you. We've been
14 making a lot of progress here. We have two important
15 topics left. I don't know if we need to go to four,
16 okay, but just in case we do maybe we should take a little
17 bit of a break now, okay.

18 And I have about eight minutes to 3:00.
19 Why don't we come back at 3 o'clock and then we'll go
20 into the defense-in-depths topic.

21 (Whereupon, the above-entitled matter went
22 off the record at 2:52 p.m. and resumed at 3:08 p.m.)

23 MR. CAMERON: Okay. Two topics, specific
24 topics left, and the next one is Defense in Depth and

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1 Safety Case/Defense in Depth, and is that Chris?

2 MR. GROSSMAN: That is me, yes.

3 MR. CAMERON: Chris Grossman is going to
4 do this one for us. Oh, let me, before we get into that,
5 just a request for some availability of documents from
6 John Greeves, one of which was mentioned which is the
7 regulatory analysis on the rule, and he also wondered
8 if there is a backfit analysis.

9 So can we make the regulatory analysis,
10 tell people where that's available?

11 MR. COMFORT: The regulatory analysis --

12 MR. CAMERON: Yes, Gary?

13 MR. COMFORT: Yes, the regulatory
14 analysis should be available on the rulemaking website.
15 I mean it was put out there the first day when it was
16 published.

17 This is the regulatory analysis not the
18 regulatory basis or anything. We're talking about the
19 numbers document that tells all the costs that we --

20 MR. GREEVES: Okay. So the answer is yes,
21 it's on the website.

22 MR. COMFORT: It's on the website.

23 MR. GREEVES: Some of us haven't detected
24 that.

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1 MR. COMFORT: It should be on
2 regulations.gov where most of the other information is
3 also.

4 MR. CAMERON: Okay.

5 MR. COMFORT: I don't know, did we get it
6 up -- we'll also place it on NRC's website on the Part
7 61 webpage.

8 MR. GREEVES: And maybe that's why I
9 couldn't find it.

10 MR. COMFORT: But it is in the
11 regulations.gov also. If you put in the docket for the
12 --

13 MR. GREEVES: That is not a user-friendly
14 site.

15 MR. CAMERON: Okay. So you're going to
16 get it on there, and you also asked about the backfit
17 analysis. I don't think there is a backfit analysis.
18 In fact, I don't -- There is no backfit requirement.

19 Backfit does not apply to Part 61, so
20 there's no backfit analysis. All right, let's go to
21 Safety Case/Defense in Depth.

22 MR. GROSSMAN: Okay. Thank you, Chip.
23 So, okay, I got the next slide. Currently Part 61 is
24 not explicit about Defense in Depth but it is implicitly

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1 included in the current regulation.

2 And so the Commission directed the Staff
3 to make that more explicit in the rulemaking, and
4 specifically the Agency set up a Risk Management Task
5 Force a number of years ago and one of the
6 recommendations was to include explicit
7 characterization of how Defense in Depth applies to
8 low-level radioactive waste disposal.

9 So you'll find a lot of this in the Federal
10 Register Notice as a background for including the
11 Safety Case and Defense in Depth. And so the proposed
12 rule includes the discussion of the Safety Case, which
13 we believe that Part 61 always kind of embodied that
14 concept, though it didn't use the terminology exactly,
15 as well as Defense in Depth protections.

16 And we'll give you an example here on the
17 right in the figure of the Safety Case for Part 61.
18 This will be kind of a blend of what's existing as well
19 as what's proposed then because we include things like
20 the Defense in Depth Analyses, which would be a new
21 requirement under the proposal.

22 So the proposed rule explains how the
23 combination of Defense in Depth and the technical
24 analyses comprise the Safety Case and essentially what

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1 we tried to do is structure it so that what a licensee
2 was required to submit previously for a license
3 application comprises elements of the Safety Case, and
4 that includes then the technical analyses that follow
5 along as well as the new Defense in Depth Analysis.

6 The Safety Case then should be used to
7 support the licensing decision. So the next slide.
8 So I'll start with Safety Case and then at the end of
9 this I'll bring it back to the Defense in Depth.

10 In 61.2 we've defined what a Safety Case
11 is, so basically like question, information, it
12 demonstrates the assessment of the safety of the
13 facility and it talks about, includes the technical
14 analyses as well as Defense in Depth, so you can read
15 the rest of that.

16 61.7 gives a little bit of the philosophy
17 to the Safety Case and how it's used in the licensing
18 process. That's on Slide 42.

19 Then on Slide 43, 61.10 is really where we
20 introduce what is the Safety Case and essentially what
21 we've added is 61.10 is the content of a license
22 application.

23 We've added a subpart (b) which basically
24 says this information comprises your Safety Case. So

1 then on Slide 44, going back to Defense in Depth, and
2 we've introduced a definition for Defense in Depth
3 here.

4 It is consistent with the Agency's
5 definition for Defense in Depth, and so you can read
6 that there. It's the "use of multiple independent
7 redundant layers of defense such that no single layer
8 no matter how robust is exclusively relied upon," and
9 then it gives examples of what it includes for a land
10 disposal facility.

11 Slide 45 is the language in 61.7, the
12 concept section for Defense in Depth where we talk about
13 the philosophy of Defense in Depth as it applies to a
14 low-level waste disposal facility, and we mention the
15 idea of the risk-informed that Eric had mentioned with
16 the risks.

17 And on Slide 46 is where we introduce
18 requirements for what needs to be included for a Defense
19 in Depth and it's a new analysis to demonstrate that
20 the disposal facility includes Defense in Depth
21 protections.

22 We attempted to do as little changes as
23 possible to bring this about, this Commission direction
24 about, so that we didn't disturb the rule too much.

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1 It could've been a very extensive revision
2 based on the Commission direction, but we didn't think
3 the Commission was going that way considering this is
4 a limited rulemaking so we tried to be as minimal as
5 possible in the rule.

6 And so a lot of what you'll find about what
7 the Defense in Depth analysis is is in guidance space.
8 And then on Slide 47, so we're looking for feedback on
9 the definitions for both the Safety Case and Defense
10 in Depth as they apply to low-level waste.

11 Any feedback you have on the philosophy of
12 the Safety Case and Defense in Depth, that's outlined
13 in the concepts, as well as requirements for the Safety
14 Case and the requirements for the new technical
15 analysis for Defense in Depth.

16 And then being a technical analysis, like
17 the other technical analyses, it would be required to
18 be updated at closure.

19 MR. CAMERON: Okay. Why don't we start
20 with definitions and concepts and then go to
21 requirements and new technical analyses. Definitions
22 and concepts, Tom?

23 MR. MAGETTE: Thanks, Chip. So I think
24 the definition of Defense in Depth that you have is

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1 perfectly fine.

2 It's exactly what I would expect to see,
3 something that talks about the various layers, you know
4 from the siting, the performance of the site, the
5 packaging, waste forms, et cetera, so I think that's
6 fine.

7 There are a couple things in here that I
8 would take exception to, and I'll actually start with
9 one that's not on your slide, which is 61.51(a), which
10 says "Site design features must be directed towards
11 Defense in Depth."

12 Now I'm not entirely sure what that means,
13 but I don't know how you have designed Defense in Depth
14 at a waste disposal site, but in a reactor, if you're
15 looking for a core cooling you have, you know, high
16 pressure safety injection and you have low pressure
17 safety injection, you have a variety of systems to keep
18 a core -- Or you have, you know, diesel generators as
19 a backup to make sure you have power.

20 But I don't think you have backup depth in
21 your design of a disposal site, so I don't think that's
22 the right wording to convey what it is that you are
23 trying to accomplish.

24 I have a little bit of the same concern

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1 about 61.13(f) where you say "analyses." I don't know
2 what you analyze in a Defense in Depth approach. I mean
3 I think you -- What I would look for is something that
4 essentially discusses or describes how you have applied
5 the concept of Defense in Depth.

6 And then you could talk about your siting
7 methodology and site isolation, site, you know, the
8 site attributes, geology, and et cetera, and then you'd
9 go through each one.

10 You could literally enumerate each one of
11 those items that are listed in your definition and
12 describe how they account for Defense in Depth, and I
13 think to the extent that there's an analysis of that,
14 it's the analysis of the overall performance of the
15 site, which is the PA.

16 So I think using terms like "a Defense in
17 Depth of a design" or "analyses of Defense in Depth"
18 I think are a little bit misleading and I think they
19 could be misinterpreted by, you know, other regulators
20 who maybe didn't have that same perspective that you
21 do that try to take a minimalist approach, because I
22 agree with what you said.

23 I think it is clear that the existing 61
24 has a Defense in Depth approach to siting the disposal

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1 of low-level waste. So just those two sections I
2 think, they're subtle wording changes.

3 MR. CAMERON: Go ahead, Larry.

4 MR. CAMPER: Yes. Thank you, Tom. And
5 let me say on this, and Chris actually alluded to this
6 in his comments.

7 We wrestled with just what to do here,
8 because on one hand we added a few words and we focused
9 on guidance, but the challenge that we faced was, and
10 these comments are most helpful to us, looking back to
11 the SRM that we got from the Commission it said
12 "Licensing decisions are to be based on Defense in
13 Depth."

14 That's pretty strong language that the
15 Commission wanted to see something more. Now, and
16 there is some different views amongst the
17 Commissioners, by the way, on this, understandably so,
18 but so we tried to find the right mix of how to get at
19 what, the direction we were getting but yet not be
20 overly burdensome.

21 MR. MAGETTE: I think you are very close
22 and I think putting the definition that you have put
23 in, like I said I think it is truly spot on and I think
24 building it into your language about the Safety Case

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1 accomplishes exactly what the SRM asks for.

2 I mean I think you have accomplished
3 exactly what the Commission put in the SRM, even if you
4 make the changes I have suggested, particularly
5 61.51(a).

6 I just don't think there is a depth of
7 design component to this question. I don't know what
8 it would be, you know, because someone's going to, what,
9 two liners, three liners, I mean what is design depth?

10 MR. GROSSMAN: An example could be your
11 waste package and then a liner.

12 MR. MAGETTE: Okay. See, and I think
13 that's already, that's capturing your definition where
14 you talk about a waste package and, you know, et cetera,
15 et cetera, et cetera.

16 You have the site performance, you have the
17 site characteristics, you have the waste package, you
18 have limits on the volume of concentration of waste
19 types, so that comprises Defense in Depth. That's a
20 system-wide Safety Case.

21 That undoubtedly incorporates Defense in
22 Depth, but it doesn't, this doesn't try to torture
23 itself, and I'm not suggesting you guys did that,
24 because I understand that the Commission gave you

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1 something of a challenge here, but I think you met the
2 challenge perfectly with your definition.

3 MR. GROSSMAN: Is the concern with your
4 question on the 61.51 that we are saying that you have
5 Defense in Depth in just the design or versus the whole
6 system?

7 MR. MAGETTE: It's not necessary versus,
8 but explicitly with the design.

9 MR. ESH: I said it could be interpreted
10 that you need Defense in Depth of your design.

11 MR. GROSSMAN: Yes, because that's not
12 what we're after. It should be in the system that the
13 whole system has to --

14 MR. ESH: The design should be part of the
15 Defense in Depth argument but not that you have to
16 achieve Defense in Depth by the design, so --

17 MR. MAGETTE: And I agree completely with
18 that.

19 MR. GROSSMAN: Yes.

20 MR. MAGETTE: I think I understand your
21 intent and as I understand your intent and as you've
22 clarified it here I agree with it. I just think
23 61.13(f) and 61.51(a) go beyond that as they are worded.

24 MR. CAMERON: I think John Greeves has

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1 some similar concerns. John?

2 MR. GREEVES: Tom and I didn't talk about
3 this before, but independently, yes, I have a problem
4 with 61.13(f). You don't analyze for Defense in Depth,
5 it's a layering process.

6 So I think you actually have done what the
7 Commission asked you to do which is explicitly lay
8 Defense in Depth in the process.

9 It's just a couple of places, my view,
10 61.13(f) is one of them, you went too far and I haven't
11 looked at what Tom was talking about, the other
12 provision, but I think, you know, losing a couple of
13 those prescriptive pieces I still think you've done
14 what the Commission asked you to do.

15 (Simultaneous speaking)

16 MR. CAMPER: So, John, let me ask you a
17 question, especially being a former Regulator.

18 MR. GREEVES: Okay.

19 MR. CAMPER: So you just said it is the
20 conducting of an analysis that you take exception to?

21 MR. GREEVES: Yes, it's just jarring,
22 Larry.

23 MR. CAMPER: Okay. So with that having
24 been said, how would you have satisfied the Commission

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1 direction that licensing decisions are based on Defense
2 in Depth protections? How would you assure that
3 without an analysis?

4 MR. GREEVES: Easy. I'd go to the
5 Commission and say that as in every other regulatory
6 area that I have regulated we used Defense in Depth.

7 You said it's implicitly in 61, now it's
8 explicitly in there, and I would tell them because I'm
9 paying attention to siting issues, I'm doing
10 performance assessment, I'm doing analysis, and there
11 are, you know, operational procedures and I'm
12 minimizing that into the future, there's layers here.

13 I just think the paragraph (f) is a little
14 jarring.

15 MR. CAMPER: So I think what I hear you
16 saying, and correct me if I'm wrong, the regulator would
17 be looking at the applicant's package in its totality
18 --

19 MR. GREEVES: Yes.

20 MR. CAMPER: -- would be observing that
21 there is an integrated safety system, which is what
22 we've referred to as DID previously today, and all these
23 things together are there but you don't see the need
24 for the applicant to do an analysis as such.

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1 In other words, the regulators ensuring
2 that DID is in fact part of the application, is that
3 kind of what you're saying?

4 MR. GREEVES: Well first the applicant has
5 that burden, too, and the regulator has the burden to
6 check and agree that Defense in Depth has been
7 exercised.

8 I just, in particular 61.13(f), I don't
9 think you need it.

10 MR. CAMPER: Right, okay.

11 MR. GREEVES: You can actually put it in
12 guidance space.

13 MR. CAMPER: Right.

14 MR. GREEVES: It's just, you know, I mean
15 in a contested environment somebody's going to come
16 along and say okay, where is that analysis, where is
17 that calculation, and where does DID in that -- It's
18 just, it's a little bit of a trap that's all.

19 MR. CAMPER: Well this is good because I
20 want to make --

21 MR. GREEVES: I think you've actually done
22 what the Commission asked you to do.

23 MR. CAMPER: This commentary is very
24 helpful to the Staff because, as I say, there is

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1 Commission interest, even though there's a strong
2 Commission direction, there's Commission interest in
3 those particular analyses and I think it's important
4 for the Staff to be fleshing this out totally.

5 MR. GREEVES: The words you used before,
6 which I don't have committed to memory, was a basis for,
7 is the word "analysis" in that sentence?

8 MR. CAMPER: No, it says "Licensing
9 decisions are based on Defense in Depth protections and
10 performance assessment, PA goals and insights."

11 Actually what it says, to be specific, it
12 says "Licensing decisions are based on Defense in Depth
13 (DID) protections (for example, siting waste forms),
14 and performance assessment (PA) goals/insights."

15 MR. GREEVES: It's all of that.

16 MR. CAMERON: And I think everybody on the
17 panel has something to say on this discussion, so let's
18 just go with Tom Magette and go Dan, John, and Charles,
19 if he wants to say anything.

20 MR. MAGETTE: I think if you start the
21 quote a little early from the SRM, and I think this
22 answers your question, Larry, from a regulators
23 perspective how do you assess this.

24 It says "The proposed rule should include

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1 a clear statement," a clear statement, "that licensing
2 decisions are based on," and then, again, it lists some,
3 we've listed -- Does it say "analysis?" That word's
4 not in here. So I think it is a fairly straightforward
5 exercise.

6 I don't think an application for a license
7 should be silent on it and I think it's perfectly
8 reasonable for you to expect a section in that
9 application that says here is the various components
10 of our Safety Case and how that provides Defense in
11 Depth, and that to me is a perfectly reasonable thing
12 to do.

13 I don't think that requires any additional
14 analysis other than the analysis that the PA will
15 provide and I think that's perfectly consistent with
16 the direction of the Commission and I think it's pretty
17 straightforward to analyze that as a regulator.

18 MR. GROSSMAN: And I think if you look at
19 the guidance, and I know Dave showed the bubble figure
20 with the different analyses and the arrows during the
21 different time periods, I think the attention,
22 particularly if you look at the guidance, this should
23 come through that you are to draw on the insights from
24 those analyses to do this -- And when we say "analyses"

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1 we don't always mean a quantitative calculation.

2 There is flexibility for the licensee to
3 do that in the guidance, but we view it as it could be
4 simply, like you said, a discussion of here is what
5 we're drawing on and we're drawing the insights from
6 our analyses to show that this is where we get our
7 Defense in Depth.

8 But if there's a better location please
9 provide comments about where we could identify that in
10 the rule that might be more --

11 MR. CAMERON: Then Larry, and then we're
12 also going to go to Bobby in a minute.

13 MR. CAMPER: So, Tom, let me pull that
14 thread just a moment.

15 MR. MAGETTE: Yes.

16 MR. CAMPER: I listened to what you said.
17 Would your comment suggest that it would've been
18 sufficient, say, for example, within the statements of
19 consideration to have a clear statement that the
20 licensing decisions are based upon Defense in Depth
21 protection such as so forth and so on, would that have
22 been sufficient?

23 MR. MAGETTE: I think it might have been,
24 but I think putting what you've done by putting the

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1 definition into 61 and then simply a statement -- I mean
2 I don't have a problem with the existence of a 61.3(f),
3 I just wouldn't use the word "analysis," acknowledging,
4 you know, Chris's comment that it doesn't necessarily
5 have to be quantitative, I would just say you have to
6 have a description of how your Safety Case provides for
7 Defense in Depth.

8 MR. CAMPER: So simply avoid the term
9 "analysis?"

10 MR. MAGETTE: Exactly.

11 MR. CAMPER: Yes.

12 MR. MAGETTE: Then you refer back to that
13 definition and, I mean I think that's pretty clear and
14 I think it does what the Commission -- It's consistent
15 with how I read what the Commission told you, and I'm
16 sure they'll tell you if it's otherwise when you take
17 the rule up to them.

18 MR. ESH: Because remember they also said
19 that in this area that the changes should be reflected
20 throughout the rulemaking package, so, you know, those
21 things combined led us to kind of discuss quite a bit
22 well what is that we need to do to implement this
23 recommendation and Safety Case at the highest level
24 could've called for a complete restructuring of the

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1 whole rule, you know.

2 When you look outside the U.S. and look at
3 Safety Case in other programs we could've said we
4 restructured all of Part 61. We discussed it and we
5 said this is a limited-scope rulemaking, we don't think
6 they intend that, let's see what we need to do.

7 With all of these things, as Chris
8 indicated, you run into a situation where you have a
9 change that you need to make but then you also have to
10 have some piece, which is what somebody needs to do to
11 meet that change.

12 You know you can't just put well, they need
13 to do X and say nothing about it, there's no analysis,
14 there's no information requirement, there's no nothing
15 associated with it, all the pieces of the regulation
16 should have, if we're adding something that is
17 something that somebody needs to meet, it needs to have
18 what piece is the action or information they need to
19 supply to meet that piece.

20 That's why a number of things are listed
21 in that analysis section to tie those things together,
22 and as Chris indicated analysis does not mean
23 necessarily a computer model. It can be paragraphs of
24 discussion as to why you've met that requirement.

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1 MR. MAGETTE: And that makes sense, but I
2 think sometimes people will be led in a different
3 direction by the word "analysis."

4 But I mean if you think about Defense in
5 Depth, if one of those barriers fails, in other words
6 if packaging fails, then you have a site that's designed
7 to contain some contamination that's leaked from a
8 package.

9 If that fails then you have site geology
10 that's designed to inhibit the transport of that
11 material. If that fails you have a remote site that's
12 far enough from a human receptor.

13 MR. ESH: Right.

14 MR. MAGETTE: So that is Defense in Depth
15 and a way to ask an applicant to describe that clearly
16 I think is what you need.

17 MR. CAMERON: And so the term analysis
18 implies too much here. Okay, yes, I think you all are
19 on the same page.

20 Let's go down to Dan and John and Charles,
21 if he wants, and I want to go back to the NRC Staff,
22 back to Bobby, after we hear from you guys, okay. So,
23 Dan, your comment?

24 MR. SHRUM: Well it's the same discussion.

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1 I reiterate that it appears to be in the wrong place
2 simply because it's under technical analysis and that
3 implies something.

4 Maybe you could put in the concepts,
5 because it is a concept of how a licensing decision is
6 made, and that is a regulator will look at Defense in
7 Depth and make a conclusion over the entire package.

8 But my other comment is we can't lose sight
9 of, we stopped discussing it, but the 61.51, the site
10 design features must be directed toward Defense in
11 Depth, and, again, I think we understand a little bit
12 better, but some clarity there also that we're not going
13 to build in multiple redundant systems that do the same
14 thing.

15 And if that's what you mean then that's
16 fine, but if it means that that's the expectation like
17 you would see in a power plant, it's a system that
18 multiple systems do the same thing, then that would be
19 pretty difficult in a landfill.

20 MR. CAMERON: Okay. John?

21 MR. TAUXE: Yes. I agree with the
22 discussion about the term "analyses" and that under
23 technical analysis it tends to imply to some folks that
24 that would involve some calculations or something, but

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1 if it can be an expository analysis using words I think
2 that's much better.

3 This whole idea of Defense in Depth reminds
4 me of the 40 C.F.R. 191 assurance requirements where
5 it's mostly words discussing Defense in Depth
6 basically, so an interesting parallel there.

7 I have one question about the diagram on
8 Slide 40 that you had showing the Safety Case and
9 Defense in Depth and how things fit together.

10 On the one side you had Defense in Depth
11 components and then on the other side Defense and Depth
12 Analyses is under technical analysis components, and
13 so does that mean that the Defense in Depth components
14 are part of the Defense in Depth Analyses, or are they
15 separate?

16 I don't know, it's a little confusing to
17 me as to how that's supposed to fit together. So I
18 don't know if I am just confused and the diagram is clear
19 to others or if perhaps the diagram could be rearranged
20 somehow.

21 So that's one comment on that. Another
22 one is I see that there is performance assessment,
23 intruder assessment, long-term analyses, so are those
24 different things?

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1 Is the long-term analysis, or what we might
2 call a deep time analysis, to be separate from a
3 performance assessment? Would a performance
4 assessment go out to the 10,000-year mark and stop and
5 then there would be a separate analysis that looks at
6 stuff in the performance period that's not part of a
7 performance assessment model, I'll say?

8 If that's the case then that's very
9 different from the way things are done now, typically.
10 Usually we just run the model out for a long time and,
11 in fact, in some language that's out there now, for
12 example, in the Request for Proposal for the West Valley
13 site they are specifically asking for a long-term
14 performance assessment and they are interested in the
15 very long term in the performance assessment.

16 So I'm curious if long-term analyses are
17 different from the performance assessment.

18 (Simultaneous speaking)

19 MR. ESH: Now, John, I'll clarify that for
20 you.

21 MR. TAUXE: Okay.

22 MR. ESH: The long-term analyses may be an
23 extension of the performance assessment, intruder
24 assessment, but it could also be something different,

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1 so that's why that slide looks the way it does.

2 MR. GROSSMAN: Yes. Yes, and I would say
3 that the comment about the Defense in Depth components,
4 what we tried to represent, albeit maybe not perfectly,
5 was because kind of the other requirements of Part 61
6 that lend toward Defense in Depth, such as the
7 requirements for waste acceptance through either
8 requirements for site ownership, site design, and so
9 forth, those are kind of physical things.

10 Those would feed into the analysis that
11 then you could expound upon how our site has Defense
12 in Depth. But what we were trying to do is represent
13 that analyses on the right side and then the physical
14 things on the left.

15 MR. TAUXE: Okay.

16 MR. GROSSMAN: Yes, that's the Safety
17 Case.

18 MR. TAUXE: Then the only other comment I
19 have is when I think of Defense in Depth I think of
20 things that are, for example, part of your site that
21 aren't taken credit for in an analysis, you know, some
22 containerization or something like that.

23 So that's Defense in Depth, and if you are
24 taking credit for it as part of a performance assessment

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1 then it's not -- Well it is sort of Defense in Depth,
2 but anyway that's the perception that I have of what
3 that language would mean.

4 MR. CAMERON: Okay. And I think we are
5 going to have a suggestion on the chart. If it's a
6 little bit, if it may be confusing to the public John
7 may have a recommendation, but let me see if Charles,
8 Charles do you have anything on this?

9 MR. MAGUIRE: Let John go since he's --

10 MR. CAMERON: Okay.

11 MR. GREEVES: I wanted to, just trying to
12 be helpful, the chart, I know what it means, but it might
13 be helpful to some if the Defense in Depth on the
14 lefthand part actually sat on top of all of this
15 because, you know, I take comfort in all of the things
16 you have in the first column, you know, the site
17 ownership, the concentration limits, et cetera.

18 And I take comfort in the analysis part on
19 the right, and to me both of those is what I would rely
20 in telling the Commission or anybody else, the Judge,
21 the applicant said he has Defense in Depth, he did all
22 these things, I reviewed it.

23 So I would simply take that lefthand box
24 and put it across the top.

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1 MR. CAMERON: And that sounds consistent
2 with what Tom's characterization --

3 MR. MAGETTE: Just a portrayal. Is that
4 what you had in mind, Chris?

5 MR. GROSSMAN: Well the Commission
6 direction --

7 MR. MAGETTE: Or could it be what you have
8 in mind?

9 MR. GROSSMAN: The Commission direction,
10 what we were trying to represent graphically was kind
11 of the Commission direction to base licensing decisions
12 of the Safety Case on Defense in Depth and the technical
13 analyses, so that's why we had to kind of bifurcate them
14 like that.

15 It may not have been -- We'll work on
16 improving that graphic for future meetings to get it
17 more clear.

18 MR. CAMERON: I know sometimes you can try
19 to react and it gets confusing.

20 MR. GROSSMAN: Yes.

21 MR. CAMERON: Larry, do you want to say
22 something before we go to Charles, and then we'll go
23 to Bobby?

24 MR. CAMPER: Actually I wanted to hear

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1 what Charles had to say about this topic before because
2 I have one observation I want to share with all of us
3 about --

4 MR. CAMERON: Charles?

5 MR. MAGUIRE: And I'll be quick. When, of
6 course, we were looking at the site, we felt like
7 Defense in Depth was an important component of the
8 licensing decisions that we needed to make.

9 As we looked at this and we looked at, of
10 course, what the Commission was working on in terms of
11 moving forward with Part 61, the way we looked at that
12 is there are all of things that we know to do to produce
13 safety and make a safety case.

14 What we thought was really the press, the
15 press that was zoned with the Defense in Depth, they
16 said not only would you look at these as individual
17 components of the Safety Case but you would look at them
18 collectively, that you can look for the interaction
19 between the site characteristics and the engineering
20 components to be sure that you were getting plus, a
21 synergetic response if you will.

22 And so, you know, we looked at lots of
23 things. I made a list, this certainly isn't everything
24 we looked at, but the depth of burial, the placement

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1 of waste in reinforced concrete canisters, disposing
2 units lined with concrete, drainage layer and the
3 cover, cover wall, include 1-foot of concrete among 17
4 other layers, NRC Branch technical position of
5 concentration averaging, low precipitation rates,
6 subsurface is compacted clay, site location, waste
7 form, waste acceptance criteria.

8 Those individually are things that make us
9 safe. How those things play together, even something
10 like the BTP, how that all interacts in terms of
11 building the case.

12 And so I don't know if analysis is the right
13 word, if that's a scary word don't use it, but certainly
14 there is some thought process here that looks to be sure
15 all the pieces in and of themselves are making a more
16 in depth piece of the safety case.

17 MR. CAMERON: Okay, everybody is on the
18 same page there and Larry, you go ahead, and I'm going
19 to --

20 MR. CAMPER: I think I'll try to finish up
21 this topic if I might. Let me say a couple of things.
22 One is there were certain parts of this rulemaking that
23 generated a great deal of Commission interest, period
24 of compliance, the three-tiered approach. There's

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1 somewhat a difference in depth, interestingly enough.
2 And this input that we're getting back from all of you,
3 ranging from could it be in the segments of
4 consideration or concepts section to making certain
5 that adjustments and how we structure it, is the word
6 analysis the right term? All these things are useful
7 and obviously we'll explore this at each one of our
8 meetings.

9 But when it comes time to write the final,
10 this is one of those areas where we envision as we
11 prepare the rule, we'll probably have a commissioners'
12 assistants briefing and share with the commissioners'
13 assistants how the staff -- internally, John, we can
14 meet with the commissioners' assistants and say this
15 is what the staff is thinking, this is the way the staff
16 is headed. It's a way to get a preliminary sense or
17 signal of, you know, yeah, that looks pretty good or
18 you guys have missed the boat entirely, what are you
19 thinking about? Or it's okey-dokey, whatever, and
20 anything in between.

21 So this is one of those topics when we cull
22 this out over these meetings and your input has helped
23 us structure our next meetings. But at some point, as
24 we finalize the rule, this is an area where we'll

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1 probably go talk to the commissioners' assistants ahead
2 of time and say this is what we did. This is what we
3 heard. This is how we modified it or not modified it
4 and why and so forth and so on. So this is extremely
5 useful dialogue. Thank you.

6 MR. CAMERON: Okay, and let's go to the
7 audience and NRC staff. Bobby, you want to introduce
8 yourself?

9 MR. ABU-EID: Good afternoon. I'm sorry
10 I could not be with you this morning because I had
11 another meeting. But I appreciate being part of this
12 discussion. It's a very important discussion. Just
13 to give you a background where it came from, DID,
14 defense-in-depth, it came from NUREG-2150 based on the
15 recommendation which Commissioner Apostolakis was the
16 leader actually, the lead also for NUREG-2150 and
17 reviewing all of the other programs and the
18 recommendation it was to establish, publish a statement
19 specifically for waste management was indicated the
20 need for defense-in-depth approach. And of course
21 risk-informed, performance-based approach. That's
22 the origin of that so the Commission they adopted that
23 recommendation in NUREG-2150.

24 Now concerning this figure, I do agree with

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1 the staff. I think the staff they did a very good job
2 to look at the safety case, although I was hoping to
3 see more details of the safety case when we look at the
4 international guidance and standards for the safety
5 case is more complicated than this, what the staff has
6 tried to simplify it in a nice way and I congratulate
7 the staff for doing that.

8 I do agree that the defense-in-depth
9 should cover all of those aspects because
10 defense-in-depth is a term that was borrowed from the
11 reactors where you do have mechanical systems, you do
12 calculations and then you go beyond the design and
13 that's usually the intent of defense-in-depth is to go
14 beyond design basis. In other words, the Commission,
15 they wanted us to look at in the design to go beyond
16 the normal case where we analyze the features, events,
17 and processes, and to look at more severe conditions.
18 And currently, we have exercise where we are doing,
19 actually looking at more severe conditions based on
20 Fukushima events.

21 Therefore, I would say defense-in-depth
22 that it made some kind of assessment beyond the design
23 basis in terms of what kind of acceptance, waste
24 acceptance criteria, what kind of engineering barriers

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1 that we need, can we do improvement that in case there
2 are severe conditions. And that, I think, is the
3 intent of the Commission behind the defense-in-depth.
4 Thank you.

5 MR. CAMERON: Bobby, could you just repeat
6 your name so that Katy has it?

7 MR. ABU-EID: My name is Bobby Eid. I'm
8 with Larry Camper in the Division of Uranium Recovery
9 and Waste Management.

10 MR. CAMERON: Do we need to know anything
11 else besides Bobby?

12 MR. ABU-EID: Yes, the formal name is --
13 the last name is A-B-U, A alpha, B, boy, U university,
14 hyphen, E Edward, I, Ion, D, David. That's the last
15 name. Thank you.

16 MR. CAMERON: We all know you, but people
17 who read the transcript, and we can get a clarification
18 if you need it later.

19 And Tim, Tim McCartin.

20 MR. MCCARTIN: Yes, Tim McCartin, NRC
21 staff. And just a perspective from the development of
22 the high level waste regulations in a similar area.
23 And we dealt with multiple barriers which was the way
24 to show defense-in-depth for the high level waste

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1 program. And we put a lot of time and effort into it
2 and I think I'm hearing some of the similar discussions.
3 We ended up, the only analysis was done with the
4 performance assessment.

5 And the requirement in the regulation was
6 to describe the capabilities of the barriers consistent
7 with the performance assessment. And then that was the
8 single requirement. There was no quantitative measure
9 for well, what makes it defense-in-depth. That was
10 always going to be a subjective decision. You would
11 look at the capabilities of the barriers for that
12 facility and then it would be the judgment of the NRC
13 staff, does that constitute defense-in-depth?

14 And just as another perspective from
15 obviously the high level waste, but it was simply one
16 calculation of the performance assessment was the
17 quantitative basis for describing the barriers.

18 MR. CAMERON: The term used was
19 description.

20 MR. McCARTIN: Yes.

21 MR. CAMERON: Okay. Thank you. Arlene,
22 is there anybody on the phone who wants to comment on
23 this issue?

24 OPERATOR: Roger, your line is open.

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1 MR. ANDERSEN: Just a couple and I guess
2 I joined the queue a long time ago, so I'm going to
3 repeat what other people have said, but I am also
4 concerned about the use of the word analysis.

5 A suggestion I have is something more
6 general like document contributors to defense-in-depth
7 or something like that. I really support the idea of
8 the safety case and the defense-in-depth concept as a
9 way to demonstrate protectiveness and document
10 protectiveness.

11 MR. CAMERON: Okay. Thank you. And I
12 think we have Brandon. Is there anybody else on the
13 line?

14 Okay, let's go to the last subject which
15 is waste acceptance criteria.

16 MR. GROSSMAN: Thank you, Chip. It's
17 Chris again. Okay. We're on slide 49 of the package.

18 As part of regulatory effectiveness, NRC
19 strives to use risk-informed, performance-based
20 approaches to enhance efficiency and effectiveness in
21 the regulation. In that light, the Commission
22 directed the staff to include new requirements for
23 developing waste acceptance criteria using one of two
24 approaches, either the existing 61.55 waste

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1 classification system or developing site specific
2 waste acceptance criteria from the technical analyses.
3 This intends to allow flexibility to do that based on
4 site specific information.

5 So what the staff has done is we've
6 refashioned the current 61.55 into requirements for
7 waste acceptance. So we've done away with the old
8 61.58 and introduced this new 61.58 for waste
9 acceptance criteria. And it focuses on three areas.
10 One is developing waste acceptance criteria, what is
11 needed to demonstrate the new WAC, waste acceptance
12 criteria, excuse me.

13 The second area focuses on how do you
14 characterize the waste to show that you're meeting the
15 waste acceptance criteria for the facility. And the
16 third then is the certification process, how you
17 demonstrate that your waste is acceptance for disposal.

18 The changes to the rule were largely in two
19 areas. In the concept section, we talk about the
20 philosophy behind this. And as I mentioned in 61.58
21 is where the meat of the changes are.

22 So if we go to slide 50, please?

23 This just deals with the concepts. We
24 talk about waste acceptance and we've refashioned the

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1 concepts to kind of step up above the waste acceptance
2 criteria to say there now is a waste acceptance approach
3 and you have two prongs of how you can demonstrate that
4 waste is acceptable.

5 On to slide 51.

6 And the requirements for waste acceptance
7 are specified in 61.58 and as I mentioned slide 51, I've
8 listed here the requirements for the waste acceptance
9 criteria.

10 Let's go to slide 52.

11 This is the section 61.58(b) that talks
12 about waste characterization, what an applicant or a
13 licensee would need to provide to characterize the
14 waste or to show that the waste is characterized
15 appropriately.

16 And then on the next slide, slide 53, is
17 the requirements for the certification program and what
18 that needs to entail.

19 Then slide 54, we're looking for feedback
20 on the waste acceptance requirements and then the
21 concepts as well that have changed to reflect that.

22 MR. CAMERON: All right. Does anybody
23 want to start us off?

24 Tom?

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1 MR. MAGETTE: Sure. Thanks, Chip. I'll
2 just say that I think it's a sound concept in my view.
3 I think it's a really good idea. I think you've
4 articulated it well. I think also I agree with Larry's
5 comment this morning that essentially this would be the
6 gold standard for determining if your site can accept
7 any given package or volume or concentration of a given
8 isotope of waste and if you have this, I don't know what
9 you could get that's better. So I think this is a
10 really strong element of the proposed rule.

11 MR. CAMERON: Dan?

12 MR. SHRUM: I agree with Tom. This is
13 great. This is kind of what we had hoped for. I do
14 have a -- what's a hybrid? With the waste
15 classification and the WAC, they're still both going
16 to be there. Just to point out that these are the new
17 ICRP standards for waste for the WAC and you're going
18 to have a different standard for the tables. May
19 become problematic and I don't -- haven't gotten my head
20 around how all that's going to work, but they'll be
21 different within the same document and I think the best
22 way -- maybe the right way is just to say you'll go with
23 WAC. Tables are going to be used for people who want
24 to hold on to tables.

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1 MR. CAMERON: John. John Tauxe.

2 MR. TAUXE: I've got a couple of issues.
3 I think, in general, it's a great idea. And I
4 understand the need for it for generators and folks like
5 that that have to be able to ask a site what they can
6 accept. A couple issues are one of flexibility and
7 here in -- let's see. It's 58 -- well, the number is
8 here on page 44. I guess it's down to (g) where
9 applications for modification of the criteria.

10 Is one expected to have -- to submit a WAC
11 to the regulator and then every time you want to modify
12 it, you have to submit a new one and get that -- is that
13 like a license modification or something like that? It
14 seems a little onerous. Where to me, a WAC should be
15 more fluid, that it's something that you would publish
16 to generators and say here's what we currently can
17 accept. And it has to be able to change them. As the
18 site accepts waste, the room for radiological materials
19 is left in the site, changes depending on the waste that
20 they've already accepted. And so the WAC, it would
21 seem, would change.

22 But I understand the need for something
23 like sort of a working WAC that is at least something
24 that well, we know we can accept this if you have

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1 something special, then we need to run perhaps some kind
2 of analysis on the PA and see if we can accept that other
3 stuff. Even though it might be outside of working
4 published WAC.

5 So I don't know. I'd like to see more
6 flexibility in it. And then all these items here, the
7 physical characteristics and all that that were
8 enumerated, none of this in here as far as I can tell
9 addresses anything about uncertainty and for doing a
10 probabilistic risk analysis or PA, that's a problem
11 because we often come down to the case where the most
12 uncertain thing is really what the inventory is and
13 inventory is based on ultimately on waste receipts and
14 manifests that go through the WAC and the WAC then
15 specifies what should be on the manifest, I guess, at
16 some degree.

17 And so I know it would seem like a burden
18 on generators to somehow evaluate the uncertainties
19 that they have about things, but especially after Billy
20 Cox worked me through how power plants, for example,
21 estimate what's in their low-level waste, there's a lot
22 of uncertainty in there and that can reflect then what
23 is known about the inventory of the site. And so it
24 would make sense to me if there were some way of

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1 capturing uncertainties in some of these things, too.
2 And right now it's just not addressed.

3 MR. GROSSMAN: The intention there, John,
4 was in 61.58(b)(7) under characterization. We talk
5 about any other information. Maybe that's not clear
6 enough. If you think we need more specificity on the
7 uncertainty.

8 MR. TAUXE: The use of the word
9 uncertainty might be useful.

10 MR. CAMERON: And Larry?

11 MR. CAMPER: I have a couple of questions.
12 Dan, it kind of goes back to the point you made. We
13 all know that today each of these sites have, in fact,
14 developed a WAC. But if I look at the license that's
15 been issued for the site, I assume in the case of the
16 Energy Solutions facility in Clive, it says it's
17 authorized for disposal for Class A waste or does it
18 say Class A waste and waste meaning the waste acceptance
19 criteria? Waste acceptance criteria. It doesn't
20 cite the classes of waste.

21 MR. MAGUIRE: It's based on the waste
22 acceptance criteria and that's a statute in Texas now
23 the waste acceptance criteria has evolved with the
24 performance assessment as it's evolved. We play every

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1 time the waste acceptance criteria is -- needs to be
2 modified, that requires a --

3 MR. CAMPER: So the license for WCS
4 doesn't specify Class A, B, C. It specifies the waste
5 acceptance criteria.

6 MR. MAGUIRE: Well, it does limit it to low
7 level radioactive waste, Class A, Class B, Class C.

8 MR. CAMPER: Okay. And then what about in
9 South Carolina. Dan are you familiar with that? Does
10 it specify Class A, B, C or does it specify the waste
11 acceptance criteria?

12 MR. SHRUM: I don't remember. I'm sorry.
13 I know that they have a WAC because it's actually lower
14 than A, B, and C.

15 MR. CAMPER: Well, the reason I ask the
16 question is because we have an established system
17 obviously, that's grown up around the use of the
18 classification scheme and the table 61.55. But as an
19 operational matter, sites have also been, in fact,
20 producing a waste acceptance criteria. So I wonder the
21 fact that we put the other pathway in the regulation
22 what will that change really from an operational
23 process standpoint? I mean will Utah, for example,
24 just as an example, say Class A or the WAC? Because

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1 in some cases that site might accommodate higher
2 concentrations of waste for Class A that are in the
3 table.

4 And so I'm just curious as to the
5 operational value that will ultimately come out of this
6 and will it ultimately be used. I think we all think
7 it's a good idea and I'm just looking at applicability
8 and usability.

9 And then the other question I have for you
10 is given that as pointed out in Chris' first slide, that
11 is the 61.55 waste classification system or, or. Have
12 we gone too far as a regulator by requiring that a WAC
13 be created?

14 MR. CAMERON: Tom Magette.

15 MR. MAGETTE: The proviso -- if you look
16 at Chris Grossman's first slide, John, it says this is
17 an "or" provision. The Commission has given the
18 flexibility to continue to rely upon the 61.55 waste
19 classification scheme or a waste acceptance criteria.
20 Or. But yet in our regulatory language, we are
21 requiring the conduct of a WAC.

22 My question is is that an appropriate place
23 to be? Does that seem to be okay?

24 MR. CAMERON: I think Tom has an opinion

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1 for you.

2 MR. MAGETTE: Of course. I'll start with
3 your second question first to which I will answer yes.
4 It's entirely appropriate for you to require that for
5 a couple of reasons, one of which is if you don't require
6 that and that probably affects the answer to your first
7 question because you might not get people doing that
8 unless you say this is an alternative that we have
9 concluded is safe and effective for protecting the
10 health and safety of the general public. So I think
11 it's perfectly reasonable for you to require that as
12 an alternative.

13 The other piece of that is we talked about
14 this notion that the best level of protection and as
15 with other elements of this proposed rule, if you don't
16 require them, why have we bothered? Because you only
17 have one site that only takes Class A waste. If you're
18 not really looking to make sure you dispose of that
19 waste separately that's below that Class C limit, then
20 you've changed nothing. And so I think it's important
21 for you to require that for those two reasons.

22 As to how licenses are worded, I think what
23 you're basically saying is this is what you're
24 establishing as a safe limit. You're not trying to

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1 second guess the policy of the four sited states or for
2 that matter one of the 46 unsited states that might be
3 sited some day. Then that's what you would be doing,
4 I think. So it's highly appropriate for you to set a
5 standard of what is safe apart from those policies of
6 those states.

7 MR. CAMERON: And Charles, do you have any
8 comment on Larry's questions before we go to Dan?

9 MR. MAGUIRE: Not really. It is a statute
10 in Texas that the WCS site has waste acceptance
11 criteria. I think one of the things that might be
12 different in terms of what you've talked about, we do
13 have two resident inspectors at the site and the waste
14 has to be certified prior to disposal. And so the WAC,
15 the license, all of those things are verified, I guess
16 I'll use that word, prior to disposal and the sale.

17 MR. CAMERON: Let's go to John Greeves and
18 then we'll go to Dan and John Tauxe.

19 MR. GREEVES: I had some comments which I
20 still want to give, but I want to just get back to the
21 question Larry raised. I actually want to hear over
22 the next months from the sited states how they're going
23 to address this hybrid approach. I'm trying to be
24 sympathetic and I think some of them are going to want

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1 to hold on to the classification tables. Isn't that
2 our policy? And frankly, it's in legislation in terms
3 of responsibility. So I subscribe to the hybrid
4 approach and I'm interested to hear how the sited states
5 are going to actually implement that.

6 I also subscribe to the waste acceptance
7 criteria, the "or" provision because I think it's a much
8 more accurate description of what the risk is for this
9 site. And I almost wish the Department of Energy was
10 part of this panel because they have real experience
11 implementing this. So hopefully, in the ensuing
12 meetings, we will hear from them.

13 So getting back to my original comments
14 which I was being patient that I was going to say about
15 -- the 61.58, we have a little bit of a broken record
16 here. I subscribe to the WAC approach. I don't think
17 you need 16 paragraphs specificity to describe it,
18 something simpler.

19 And kind of a corollary question I actually
20 liked 61.58 the way it was before which is one
21 paragraph. It's useful. Did you consider taking the
22 WAC approach and giving it its own number? Why did you
23 blow away the current useful 61.58? Did this come up?

24 MR. GROSSMAN: Yes. The reason we used

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1 61.58 to do this is because we felt once we implemented
2 this, there was no need for 61.58 as it exists today.

3 MR. GREEVES: That's an opinion. I have
4 a different one. I wish we would leave 61.58 and find
5 a home for the WAC for what it's worth.

6 MR. CAMERON: Larry?

7 MR. CAMPER: Well, on the 61.58, too,
8 John, in addition to the point that Chris made, it's
9 a by exception provision. It simply hasn't been used.
10 The State of Utah doesn't even have it in its
11 regulations.

12 MR. GREEVES: I would assert it has been
13 used. When I was regulating and one of the sited states
14 had some stuff, we came and we had to do an analysis.
15 The Commission, for me, had to do an analysis.

16 MR. CAMPER: Did you create a
17 classification of waste?

18 MR. GREEVES: Well, it was material that
19 I think we used that provision that we said it's safe,
20 it doesn't ring the bell. Leave it alone. And --

21 MR. CAMERON: Let's see if Dan has any
22 perspective on this and also he had something to say
23 from before. Go ahead, Dan.

24 MR. SHRUM: You asked the question is this

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1 the right way to go? Yes, this is the correct way to
2 go. It gives flexibility again. I think I remember
3 reading three of the four agreement states haven't
4 adopted 61.58. So it's not just Utah that -- is that
5 in there?

6 MR. GROSSMAN: I can't remember off the
7 top of my head how many states do or do not, but we do
8 talk about how many use --

9 MR. SHRUM: Yes, anyway. So Tom
10 mentioned that this appears -- will be the Utah rule.
11 This will mostly affect Utah because it's a Class A,
12 right now, right now, it's more -- that's who it will
13 affect the most. Texas already has a WAC. We have a
14 WAC. US Ecology up in Washington, we all the WAC. This
15 allows an option.

16 What you're doing is giving the option and
17 the rest of it will all be happening within mostly the
18 State of Utah, so it's fine the way it is.

19 MR. CAMERON: Okay. Go ahead, John, and
20 then we're going to go to the phones.

21 MR. TAUXE: Well, then maybe that brings
22 up a question of compatibility with the "or." I mean
23 is the "or" to use the tables or WAC, is that something
24 that the states can decide on their own, whether they

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1 want to use the tables or the WAC or will the states
2 be required to also say you can use the tables or the
3 WAC, licensee.

4 MR. CAMPER: Let me answer that. The goal
5 of the Commission for this particular provision was to
6 provide flexibility to use either the waste
7 classification table or the waste acceptance criteria.
8 However, the staff would interpret this part of the
9 regulation as a significant component of it. It would
10 therefore be compatibility B.

11 MR. CAMERON: Arlene or Brandon, is
12 anybody on the phone on this issue, waste acceptance?

13 OPERATOR: No one currently in queue at
14 this time.

15 MR. CAMERON: Thank you. Thank you,
16 Brandon.

17 I think Larry, Larry, do you have a
18 comment?

19 MR. CAMPER: Thank you, Chip. I do and I
20 want to thank the panel for the feedback because this
21 is an area again, the Commission, I think we all
22 understand the role of a WAC and the value of a WAC.
23 It particularly has value when you align yourself with
24 a site specific performance assessment, if you stop and

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1 think about it. One could argue that it is the essence
2 of the site specific performance assessment.

3 So the important thing for the staff, given
4 that the Commission has put this provision into the
5 regulation and given that we have a system that's grown
6 up over all these years that is built around the waste
7 classification system, the question that it is utility
8 and is it something that's going to actually get some
9 movement out there amongst the states, that it's
10 something that's valuable for us to be able to
11 communicate with the Commission when we go back with
12 the proposed rule. So thank you. It's very good
13 input.

14 MR. CAMERON: Okay. And --

15 MS. YADAV: This is Priya Yadav. I can
16 give you my name if you can't spell it. But Chris, I
17 don't know if you mentioned that we have Section F which
18 says each licensee shall annually review the WAC. I
19 don't know if you mentioned that. And we don't have
20 anywhere else for any of the analyses. So that's just
21 something that's out there for you guys to think about
22 so you don't have to update it that frequently, but at
23 least annually you have to update the WAC.

24 And the other thing is about the regulatory

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1 analysis. It is in ADAMS and it's on the FRN, the ADAMS
2 number is in the FRN, so it will take us a couple of
3 days to get it on the site specific analysis website
4 which is where you got the redlines. So I'll get it
5 on there, but if you want the ADAMS number, it's in the
6 FRN and I can give it to you if anybody needs it now.

7 MR. GROSSMAN: I can wait a day.

8 MS. YADAV: Okay, a day. Okay.

9 MR. GROSSMAN: I can wait until next week.

10 MR. CAMERON: Thank you, Priya. There
11 was another category, I think that you've already --
12 Larry said that the second rulemaking, comments on the
13 second rulemaking are within the scope. Comment, we
14 had a discussion on compatibility including Charles'
15 point about a possible Category C for one provision.
16 You've talked about the guidance, so I think you're
17 done. I don't know whether the staff wants to say
18 anything more about the guidance.

19 And Larry, the senior official will close
20 it out for us.

21 MR. CAMPER: Thank you. Thank you very
22 much. Anything else, does anybody else want to --
23 John?

24 MR. GREEVES: One of your original

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1 questions, any clear message on the second rulemaking?
2 I want to be real clear. I don't think it's necessary.
3 This one has been hard enough. You've put in place a
4 site-specific performance assessment.

5 MR. CAMERON: Fewer paragraphs --

6 MR. GREEVES: No, this is different.
7 You've got a hook, Larry. You know what I'm talking
8 about? You've got an assignment to come back and tell
9 the Commission what you heard from the public
10 stakeholders and us being very clear what you are
11 proposing with some adjustments, it's going to do it.
12 It accomplishes the goal. There's no need to go back
13 and do another rulemaking and revisit the
14 classification system. My opinion.

15 MR. CAMPER: Thank you, John.

16 MR. GREEVES: Eventually, I'll put that in
17 writing.

18 MR. CAMERON: We have one person, one
19 staff member in our audience. Chris?

20 MR. MCKENNEY: Chris McKenney, NRC. One
21 that was not on the earlier meeting this morning is that
22 we will be setting up a webinar on May 18th and the time
23 is --

24 MR. GROSSMAN: It's a week. We haven't

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1 set a date.

2 MR. McKENNEY: There will be a webinar
3 more focused on the guidance document that's going to
4 be held and so that will come up on the website. We
5 haven't figured out the exact date and time. We're
6 working with DOE because we're working through using
7 the community practice that we are members of that can
8 reach into a lot of different PA people so that we can
9 try to get additional comments on the guidance
10 document.

11 MR. CAMERON: And will that be on it -- and
12 so if people go to the NRC public meeting schedule it
13 will be on there. They can see that. Okay. May 8th,
14 look for that.

15 Larry.

16 MR. CAMPER: Thank you, Chip, and others.
17 Again, with regards, John, to your last comment, thank
18 you for that, but please do provide that in writing as
19 well and any other views on this so it can be processed
20 as a comment, per the process.

21 Today has been very useful, I think. I
22 think your views have been very thought provoking.
23 You've given us a lot of things to use as we proceed
24 for the next public meetings. You've given us some

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1 things to think about as we ultimately prepare a final
2 rule, proposed rule, a final rule I should say for
3 Commission consideration.

4 So we thank you. I think this has done
5 exactly what we had hoped that it would do because the
6 following public meetings don't have a panel. It's the
7 staff communicating with members of the public and
8 reacting to comments that are provided, so this helps
9 us formulate and we can share in those public meetings
10 some issues that were raised here that can promote some
11 other thought.

12 So I will close by saying just to remind
13 everyone that's out there listening, we do have a
14 meeting scheduled in Austin, Texas for May 12; a meeting
15 in Columbia, South Carolina for June 2; Richland,
16 Washington on June 9; Salt Lake City on June 10; and
17 those meetings will be from 6 to 9 p.m. in the evening
18 and locations will be determined.

19 I would also like to close by thanking the
20 staff for all the hard work that they did, not only to
21 put together this proposed rule over a very long time,
22 but also the specific preparation for this meeting and
23 so forth. So I thank all the staff very much. Thank
24 you. We conclude.

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1 (Whereupon, the above-entitled matter
2 went off the record at 4:11 p.m.)
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