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Proposed Changes to 10 CFR Part 61

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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PUBLIC MEETING TO DISCUSS RECENT
PROPOSED CHANGES TO 10 CFR PART 61
LOW-LEVEL RADIOACTIVE WASTE DISPOSAL RULEMAKING

+ + + + +

WEDNESDAY,

JUNE 10, 2015

6:00 P.M.

+ + + + +

Hilton Garden Inn
Salt Lake City Downtown
250 West 600 South
Salt Lake City, UT 84101

PRESENT FROM NRC:

Chip Cameron, Facilitator

Andrew Persinko

Stephen Dembek

David Esh

Christopher McKenney

Lisa London, Esq.

AGENDA ITEM

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Adjourn

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P R O C E E D I N G S

(6:00 p.m.)

1
2
3 MR. CAMERON: Thanks, Jeremy. Good
4 evening, everyone. Welcome to the public meeting
5 tonight, and our topic tonight is a proposed rulemaking
6 on the disposal of low-level radioactive waste, and
7 this rule was proposed by the United States Nuclear
8 Regulatory Commission, and that agency is sponsoring
9 this public meeting tonight. We're going to try to not
10 use acronyms, so one thing you will hear tonight is NRC
11 for Nuclear Regulatory Commission, and I will be
12 serving as our facilitator for tonight's meeting, and
13 in that role, I will try to help all of you to have a
14 constructive meeting tonight.

15 I just want to go over some meeting process
16 issues so you know what to expect tonight. I would like
17 to tell you about the objectives for the meeting, the
18 format for the meeting, some simple ground rules and
19 introduce tonight's speakers to you. In terms of
20 objectives, the first one is to give you a clear
21 explanation of what is in the proposed rule and to
22 answer any questions on the proposed rule. Second
23 objective is to listen to your comments,
24 recommendations on the proposed rule.

25 Now, we're transcribing tonight's

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1 meeting, and we have Kellie as our stenographer, and
2 that transcript will be publicly available, and it will
3 be your record and the NRC's record of what transpired
4 tonight, and anything you say tonight is going to be
5 formally on the rulemaking record. Now, the NRC is
6 also soliciting written comments on the proposed rule,
7 and the NRC staff, in a few minutes, will be telling
8 you how you submit those written comments. But
9 comments tonight will carry the same weight as written
10 comments, and if you want to amplify on anything you
11 say tonight and submit a written comment, that is
12 welcome.

13 In terms of format, you can see from the
14 agenda that we have three speakers, and I'll introduce
15 those speakers to you in a minute, and after each
16 presentation, we will go out to you for questions and
17 comments. Now, I'll introduce Dave more formally,
18 Dave Esh, but he really is going to address the heart
19 of the issues tonight and go through the primary
20 technical issues in the rule, and there's seven or eight
21 of those, including an "Other" category. So after each
22 of those important technical issues, we will go out to
23 you to see if you have any questions or comments.

24 Now, we're also having people participate
25 by phone, and that's why we have Jeremy, the operator,

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1 with us tonight. So we will be going out to those on
2 the phone periodically. We also might get questions
3 that come in through the web.

4 In terms of ground rules, when we go out
5 for discussion, just give me a signal if you have
6 anything you want to say, and I will bring you the
7 microphone. And it's important that each time you talk,
8 that you introduce yourself so that Kellie knows who
9 is saying what, and I would also ask you that we only
10 have one person speaking at a time, and that is so that
11 we give our full attention to whoever has the microphone
12 at the moment, but also so Kellie can get a clean
13 transcript, she will know who is talking. And the
14 introduction also goes for people who come in through
15 the phone, too.

16 A third ground rule is to try to be brief.
17 I want to make sure that we get everybody tonight, and
18 there's a lot of material to cover, and I'm not going
19 to put any limits on how many times someone talks, but
20 I want to do this equitably to make sure that everybody
21 who wants to talk gets an opportunity to do that.

22 And in terms of our speakers, we are going
23 to go first to Drew Persinko, who is right down here.
24 Now, Drew is going to give you a welcome and an overview
25 with the proposed rule a little bit to have history

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1 behind it. And Drew is the deputy division director
2 of the NRC's division of decommissioning, uranium
3 recovery, and waste programs, and that's in the NRC
4 office of nuclear materials safety and safeguards, in
5 Rockville, Maryland.

6 After Drew is finished, we will go on for
7 questions, comments. We will go to Steve Dembek right
8 here. Steve is going to talk about the rulemaking
9 process. He's a project manager in the low-level waste
10 branch in Drew's division. So, again, we will go for
11 questions, comments, and then we are going to go to Dave
12 Esh.

13 Now, Dave is a technical expert on
14 performance assessment, and he is going to tell you what
15 that means. He is going to go through the proposed rule
16 for you, and Dave is in the performance assessment
17 branch in Drew's division, but we also have the chief
18 of the performance assessment branch with us tonight,
19 Christopher McKenney, in case we need to use his
20 expertise at all.

21 We may have one of the NRC's attorneys from
22 the office of general counsel, Lisa London, on the phone
23 if we run into any legal issues that we need to answer.
24 And I want to introduce Shawn Beardsly. Shawn is from
25 Senator Hatch's office, and I just want you all to know

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1 that Senator Hatch is paying attention to this. And
2 I think that, I think that we can go to Drew now.

3 MR. PERSINKO: Thank you, Chip. Can you
4 all hear me fine? Well, good evening, everybody. I
5 want to welcome you here to our 7th and final meeting
6 on the 10 Code Federal Regulations, our low-level waste
7 proposed rule in our rulemaking. We have had six
8 meetings elsewhere around the country and this is our
9 last one. We wanted to come to Utah and have a meeting
10 in Utah because we wanted to have a meeting in each of
11 the four states where commercial facilities are
12 currently operating.

13 Copies of slides are out front, and I saw
14 many of your grabbing the slides as you walked in. I
15 have some -- in my package, I have some backup slides
16 in there that talk about sort of the history of the rule
17 that I do not plan to go through, but they are attached
18 to my slides, so I encourage you to look at them if you
19 want to see of the history of the rule. Next slide,
20 Steve.

21 Okay. Well, the objectives of the
22 meetings, Chip mentioned them in his opening remarks,
23 but you can see the objectives on the screen. They are
24 basically to discuss proposed revisions to the
25 low-level radioactive waste rules that are contained

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1 in the Code of Federal Regulations, the 10 CFR Part 61.
2 And for the acronyms, that is another acronym we use
3 a lot here. CFR is Code of Federal Regulations. Most
4 of you know that but there may be some who don't. So
5 these regulations are in our 10 CFR Part 61. They are
6 low-level waste regulations.

7 We also want to encourage you to submit,
8 and others on the phone, to submit comments using
9 methods that Steve will talk at when he speaks. Even
10 though the meeting is being transcribed, I still
11 encourage you to submit written comments on the record.
12 As Chip said, Dave Esh will talk. He will present the
13 technical details around the various aspects of the
14 revisions, and Dr. Esh and Chris McKenney have been
15 involved in this rulemaking since it started back in
16 2006, so they have a long history of being with the rule.

17 The one last thing is we are going to answer
18 your questions to the best of our abilities, but the
19 real primary purpose of the meeting is to receive
20 comments. I mean, we are going to discuss the rule,
21 but then we want to hear your comments. As I said,
22 that's a very -- one of the primary reasons for the
23 meeting. Next slide, Steve.

24 So let me start by saying that we do believe
25 that the current regulations, the 10 CFR Part 61

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1 low-level waste regulations, are adequate to protect
2 the public health and safety, so why are we doing the
3 rulemaking? Well, it has to do with things -- those
4 regulations were put into effect back in,
5 approximately, 1982, and things have changed a little
6 bit since then, so we wanted to revisit the regulation
7 to make sure that applicants, as well as active
8 licensees, ensure that low-level waste streams that may
9 be significantly different from those waste streams
10 that were analyzed back in 1982 when the rules
11 originally developed, we want to make sure that those
12 new waste streams are, in fact, addressed. Steve.

13 This slide is pretty much for a high-level
14 context. It talks a little bit about the history of
15 the rule, without going into all of the back and forth
16 of the lot of the details, but I want to give you a little
17 context of the rule, of the proposed rule. The rule
18 actually -- the rulemaking actually started back in
19 -- back in 2005, 2006, and it actually grew out of
20 an adjudicatory proceeding that took place regarding
21 the Louisiana Energy Services in Richmond, a license
22 application.

23 Following that adjudicatory process, the
24 commission sent the -- directed the NRC outside of these
25 adjudicatory process, they directed us to examine

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1 whether or not the regulations in 10 CFR Part 61 needed
2 to be modified to address the disposal of large
3 quantities of depleted uranium that were anticipated
4 to come from uranium enrichment facilities.

5 So the staff undertook an analysis. The
6 staff was asked to conduct an analysis to determine
7 whether or not we believe that the large quantities of
8 depleted uranium were, in fact, suitable for near
9 service disposal. So that was the analysis we
10 undertook. Our analysis showed us that it was,
11 provided certain -- under certain conditions.

12 Along the way while we were doing the
13 analysis, we also recognized there were other issues
14 that we would need to address and should address, and
15 those issues had to do with trying to address any other
16 waste streams that might come along in the future so
17 that we don't have to continuously revise our
18 regulation for new waste streams.

19 There was considerable commission
20 direction to us, and when I say commission, I want to
21 make some of you -- we all work for the Nuclear
22 Regulatory Commission, but when I say the commission,
23 I am referring to the five commissioners, the actual
24 commissioners. So the commission -- we are the staff
25 of the commission and then there is the five

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1 commissioners. So there was considerable direction
2 from the commission, meaning the five, the five
3 commissioners.

4 So we put out a version of the rule once
5 before and draft language of the rule, and we had
6 several public meetings on the rule. It wasn't a
7 proposed rule at the time yet. It us was just a
8 preliminary proposed rule, if you want to give it a
9 title, but it hadn't reached a proposed rule stage. We
10 got several rounds of commission direction, and the
11 commission direction, as I said, is in my background
12 slides.

13 So we have reached the point now where we
14 actually -- we have a proposed rule. We published it
15 for comment back on March 26th, and we are in the 120-day
16 comment period of the rule. When the 120 days is up,
17 we will analyze the comments we receive, and we will
18 work with the commission to develop a final rule. And,
19 of course, we will incorporate any direction we get from
20 the commission at that time.

21 The next -- the other item I wanted to
22 mention or highlight is the issue -- you can see on the
23 slide is the issue of compatibility. There is a lot
24 of interest in compatibility for this rule. When I say
25 compatibility, what I am talking about is really, it

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1 is a relationship between NRC's regulations and the
2 agreement of state regulations. And what it means is
3 it describes -- it really describes how precisely the
4 commission wants the language in a given rule to be
5 replicated in the agreement state regulations.

6 So for this rule, the commission directed
7 the staff that the rule should be what is known as
8 Category B. What Category B means is that the states
9 need to adopt the NRC's regulations with, essentially,
10 the same wording that the NRC has used in its
11 regulations. So it is very much a -- very much verbatim
12 for what the NRC has said.

13 There's also an issue of agreement state
14 applicability, and I have some slides on that in a
15 moment that I'll get to. And last, there's still an
16 outstanding issue even when the rule is down. The
17 rule -- and the outstanding issue is this: When the
18 commission directed the staff to proceed and do a
19 site-specific rulemaking on Part 61 rulemaking, it also
20 charged the staff to look at modernizing and risk
21 informing the waste classification tables, including
22 what class of waste is depleted uranium. And those
23 tables I am talking about is in the 10 CFR Part 61
24 regulation, and that assignment to us is still there.
25 We still have it.

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1 The commission gave us some subsequent
2 direction now, and they did say that they want us to
3 complete this rule in its entirety before we move on
4 to the other rule. And before we start the other rule,
5 they give us direction on what they wanted us to do,
6 and I will read it to you. It is not in that slide but
7 I will read it to you.

8 The commission told us that after the
9 limited rulemaking, that is meaning the rulemaking we
10 are here tonight to discuss, after the limited
11 rulemaking is complete, the staff should provide a
12 commissioner's assistance note to the commission. In
13 other words, that's a communication device we use with
14 the commission. We should provide a note to the
15 commission on the secondary rulemaking effort for waste
16 classification tables, and that note should identify
17 the specific comments that have been received on the
18 need for a second rulemaking, and clearly articulate
19 the basis in accepting or dismissing the comments.

20 So what that means is in addition to the
21 comments we were seeking tonight on the proposed
22 revisions to the regulation, we are also interested in
23 getting comments from you about whether or not you
24 believe that another rulemaking would be needed to
25 address the specific classification of depleted

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1 uranium and also risk inform the waste classification
2 tables that are in the regulations. So we are
3 interested in getting your comments on that, as well
4 as the existing rule itself, the proposed rule that is
5 out for comment right now. Next slide, Steve.

6 Okay. So this is -- these words you see
7 on the slide, these are in our current regulations.
8 They are currently in the Part 61 regulation. If you
9 go about halfway down in there, there is a sentence that
10 reads "Applicability of the requirements in this part
11 to commission licenses for waste disposal facilities
12 in effect on the effective date of this rule will be
13 determined on a case-by-case basis."

14 So what was happening when the regulations
15 were put into effect back in 1982, the commission wanted
16 some flexibility for addressing states that had
17 operating sites at that time. South Carolina comes to
18 mind, Washington does. So when that rulemaking was put
19 into effect back in '82, the commission wanted to deal
20 with -- on a case-by-case basis, deal with the existing
21 facilities. It turns out, anyway, later on, later by
22 about 1988, I think the sites, the sites in existence
23 at that time pretty much adopt the Part 61, anyway. But
24 next slide.

25 For this rule, the current proposed rule

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1 that we have out for comment, it is a little different.
2 This time the commission's proposed rule -- we point
3 out that the proposed rule would affect existing and
4 future low-level radioactive disposal facilities that
5 are regulated by the NRC, or an agreement state. In
6 other words, this rule will affect those operating in
7 agreement states upon its implementation. So I know
8 there is a lot of interest from some of the states about
9 the rule being applicable to individual states, so I
10 am pointing this out right now because it will affect
11 existing facilities. Next.

12 So let me mention a little bit about the
13 rationale again for the current rulemaking. I
14 mentioned earlier that it really started off with large
15 quantities of depleted uranium. And along the way as
16 we were doing the analysis, we realized there were some
17 other things that we really should address and it would
18 be good to put in the rule. And the other things that
19 we looked at -- so we really looked at a few other things
20 in this rulemaking.

21 So we started off with depleted uranium,
22 especially from enrichment facilities, and when we did
23 the analysis, we knew they were somewhere in the order
24 of about 700,000 metric tons of depleted uranium in the
25 enrichment facilities. And we knew that additional

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1 depleted uranium would be generated as time went on.
2 So there was quite a bit of depleted uranium that we
3 had to address.

4 SPEAKER: How much was that?

5 MR. PERSINKO: It's 700,000 metric tons.
6 So the other waste streams that I am mentioning that
7 we also knew were -- that may be different is that we
8 would have more low-level waste from DOE facilities
9 than the regulation envisioned back when it was
10 developed back in the early '80s.

11 There is also the topic of blended waste,
12 and blended waste has come along fairly recently. What
13 blended waste is, is waste that is composed -- it is
14 a mixture of what would be Class A waste, Class B, and
15 Class C, and it is blended together in such a fashion
16 such that the concentration of the resulting mixture
17 is really a Class A waste, so there was -- that was
18 another aspect of the rulemaking that came along.

19 And then also I mentioned that we
20 anticipated that somewhere down the road there would
21 be new technologies that might emerge, so we wanted a
22 more general approach that would be applicable as time
23 went on, and we wouldn't have to go back every time and
24 revise the regulation.

25 Okay. I mentioned that this is the 7th and

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1 final meeting, so these were -- these are the previous
2 meetings we have had. As you can see on the screen up
3 there, we started in March, in Phoenix, and we have
4 had -- you can see on the screen but I won't read it
5 to you, but you can see that we have had other meetings
6 before. In addition, we have had a webinar over the,
7 over the phone and over the web.

8 And I mentioned on the slide here, I said
9 we have some post rulemaking actions. What I am really
10 talking about there is that I told you, there is still
11 an outstanding item. We owe the commission a
12 communication on whether or not we think the waste
13 classification tables need to be risk informed and
14 revised and classified for depleted uranium. So that
15 is what I am referring to on this slide when I say some
16 post rulemaking actions.

17 So those are my introductory remarks. Are
18 there any questions?

19 MR. CAMERON: Okay. Let's go out to the
20 people here in the audience in Salt Lake. And, Naomi,
21 could you please introduce yourself to us?

22 MS. FRANKLIN: My name is Naomi Franklin.
23 You neglected to tell, tell us where to do the written
24 comments.

25 MR. CAMERON: That is coming up in the next

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1 presentation. And this is Naomi Franklin.

2 Yes, sir.

3 MR. FRANK: I'm John Frank. I live in
4 Salt Lake City. I wonder if you could define the term
5 that is in the title, and it seems like a critical term,
6 and that is disposal. What does that mean for the NRC?
7 It is a word that is commonly -- has many connotations.
8 What is the exact definition as far as the NRC is
9 concerned?

10 MR. CAMERON: Thank you.

11 MR. PERSINKO: I don't know the exact
12 definition, but disposal to me -- I don't know if it
13 is in the regulations or not. Is it?

14 MR. MCKENNEY: Yes.

15 MR. CAMERON: Disposal is oftentimes as
16 differentiated from storage, for example.

17 MR. PERSINKO: It might be in the
18 regulation. That would probably be the definition I
19 would give you. Do you have it?

20 MR. ESH: I'll read it. Disposal means
21 the isolation of radioactive waste from the biosphere
22 inhabited by man and containing as food chains by
23 placement in a land disposal facility. So that is the
24 definition in the current regulation, and we have not
25 changed it in the proposed regulation.

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1 MR. CAMERON: Okay. Let's go to Matt.
2 Could you introduce yourself to us?

3 MR. FERCHEN: Sure. I am Matt Ferchen
4 (sic) and I wanted to follow up on the point about the
5 depleted uranium, which we appreciate hearing, and it
6 is great to know that comments on the wisdom of
7 classifying that are an important part of this, and
8 there's a lot of us that have feelings about that.

9 I wondered if you -- I am sure your folks
10 are aware that, you know, of course we have this sort
11 of awkward and parallel process happening in Utah.
12 Right? Where on one hand, you folks are writing rules
13 addressing waste streams, while Utah is already sort
14 of ahead of that. Right? Already nearing the latter
15 stages of making a decision on that very thing. So,
16 again, we have parallel trains going down the track,
17 and I'm not exactly clear which one will cross the
18 finish line first.

19 So as I am sure you know, Utah issued a
20 document, a draft safety evaluation report, and it put
21 a condition upon potentially accepting that waste at
22 some point down the road, and that condition was that
23 the NRC would let the state know whether it planned on
24 classifying depleted uranium. And as you may know
25 then, our governor, interestingly, even sort of went

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1 a step further and very strongly came out and said that
2 this was very important to him.

3 So I guess I am just wondering if you can,
4 can you comment upon what your reaction was to that
5 request, and how you think that request fits in
6 with -- and I don't want to mischaracterize how you
7 stated it, but how this sort of next job to come once
8 you finish these rules, which would be the
9 classification. Thank you.

10 MR. PERSINKO: Right now, I mean, depleted
11 uranium is Class A waste. The commission said that.
12 It is Class A waste. It is treated as it's Class A
13 waste. So for our purposes, I mean, it can be, it can
14 be disposed of in the Utah site as a Class A waste. So
15 that's our perspective right now, but, you know, as I
16 said, the story isn't over on that yet.

17 I mean, this is where you get a chance to
18 send some -- provide comments on your view of whether
19 or not we should revise the waste classification tables
20 and whether, as part of that, whether we should define
21 the low-level -- define the depleted
22 uranium -- classify, not define but classify the
23 depleted uranium. Because right now, it is -- I mean,
24 it is by default it is classified as Class A waste
25 because it is not listed in the other classes, and the

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1 commission has told us that that is what it is. So for
2 our purposes, we treat it right now as Class A waste,
3 but this is your opportunity to, like I said, provide
4 comments on that.

5 MR. CAMERON: Okay. Let's go to Rusty.

6 RUSTY LUNDBERG: Rusty Lundberg with the
7 division of radiation control here in Utah. I would
8 like to express appreciation, so that it is on the
9 record, of NRC's efforts to make these meetings
10 publicly available to those who are inside the states
11 where commercial disposal is occurring.

12 And more importantly, the format of this
13 so that it is an exchange of information, and questions
14 can be asked and answered, and have that be a part of
15 the rulemaking record and then secondly, as far as the
16 extensive effort that has gone into this development
17 work, we are not without recognition of not only the
18 time that this has taken, but the considerable
19 consideration that has been a part of this. We
20 certainly recognize that as an agreement state with the
21 NRC.

22 But what I really want to offer here is that
23 as you continue to evaluate these comments, I think that
24 there are aspects of what we are facing, what we have
25 done in Utah as far as our own rules that we will be

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1 further commenting on that, but we just want to
2 underscore the value of where we have been, and what
3 is facing us in the near term as well. But in concert
4 with that, just, again, express appreciation that we
5 have this more personal exchange that we can have this
6 time. So thank you.

7 MR. CAMERON: Thanks, Rusty. We are
8 going to go to you, then this gentlemen, then the
9 gentlemen in the back, and then go over to the phone.
10 Please introduce yourself.

11 MS. KING: I am Cindy King. I am with the
12 Utah chapter of the Sierra Club. I have a question that
13 is dealing twofold; in the table that you list for the
14 purpose of toxicity, how do you address that based on
15 health versus a fiduciary responsibility of all
16 regulatory agencies? And I would like that to be
17 defined, and how you are going to do that. Because it
18 depends -- the reason I am asking is the health risk
19 could be accumulative not necessarily based on a
20 fiduciary responsibility, which is defined
21 differently. So I need to have a clarification on how
22 that is going to be done. Thank you.

23 MR. CAMERON: And I think that that
24 subject is going to be addressed in Dave Esh's
25 presentation.

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1 MR. ESH: Maybe.

2 MR. CAMERON: Do you understand what Cindy
3 means by fiduciary?

4 MR. ESH: I don't.

5 MR. CAMERON: Okay. Cindy can you
6 explain what you are saying by fiduciary, and we may
7 wait to answer this until later on, but if you could
8 just explain what you mean by that.

9 MS. KING: I will give a general
10 understanding because I do have a more precise one when
11 I submit comments. I am talking about the protection
12 of what they normally call seven generations or more.
13 I have another definition that is more precise but it
14 goes to the protection of the land, the water, the air,
15 not only for today but for years to come. And since
16 depleted uranium increases and can change its toxicity
17 as it turns and goes through the various durations, that
18 that's defined differently, and the tables might not
19 necessarily address that based on a health risk versus
20 a legal definition of fiduciary responsibility.

21 MR. CAMERON: Okay, that's clearer for us.
22 And can we -- will you address this when we get -- we
23 will put that in the parking lot. We will come back
24 and it will make more sense in the context of Dave's
25 presentation, so we won't miss that one.

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1 Yes, sir.

2 MR. MACKNER: My name is Ed Mackner, and
3 I wanted to ask you, the word blending is actually
4 you're diluting. Right? In other words, you are
5 making a mixture. Right? And so, therefore, you're
6 complicating the substances. You are going to have to
7 have an approximate -- let's say down the road you find
8 the technology that you can separate these particular
9 other wastes. Are you aware of the amount of work that
10 you might have to do in order to separate them, to take
11 them, say, to another facility and maybe catalytically
12 reduce the radiation by some -- so the blending is
13 interesting because it seems like you are complicating
14 the process.

15 It would seem to me if I were in charge,
16 I would not, I would not blend. What I would do is
17 separate because they are already separated. You
18 don't have to do any work. And then maybe somebody like
19 Mr. Buffet would offer a big prize for a scientist who
20 could find some catalytic way of reducing -- increasing
21 the half life. So my question is, why do you want to
22 mix and blend?

23 MR. CAMERON: Okay, thank you. Who wants
24 to talk to that? Chris, go ahead.

25 MR. MCKENNEY: Blending was a

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1 consideration because of changes in access to disposal
2 sites, but blending has always occurred at different
3 scales. What -- and what was being blended was pretty
4 much physical alike things. So a resin bead. They
5 come up with little beads used to capture stuff out of
6 the water. Some higher concentration beads would be
7 mixed with lower concentration beads, and then it would
8 not be like physically separated completely. I mean,
9 you can do some stuff, but -- and there were some, some
10 parts of that works that actually reduce its form, so
11 it was actually less able to be mixed. Some people
12 projected that. And because of all those
13 possibilities, which was that was on the large scale,
14 but some of the power plants already have that as
15 naturally in their plant. All of their resins feed into
16 the same tank already for waste disposal.

17 So this issue has been there, and we
18 have -- we wanted to make sure that in case some were
19 to do that on a large scale, that they took into account,
20 such as if they separated apart, or if you put a lot
21 of it together one place in a disposal site. We wanted
22 to make sure that the regulations made you look at that,
23 to evaluate that as part of a provient. That is one
24 of the reasons why we want to do the scientific analyses
25 is because you can look at those types off issues.

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1 Those separations of an issue is the --

2 MR. CAMERON: I would just say that it's
3 wonderful that all of you are here, and I know we are
4 going to have an active discussion. Usually we have
5 a lot of time for follow up, but I am afraid that we
6 really are going to be pressed for time, but the NRC
7 staff will be here after the meeting, also, and if we
8 want to talk more about that, we can do that. But let's
9 have one more question, and then see who we have on the
10 phones.

11 Yes, sir.

12 MR. TAYLOR: Thank you. I am just
13 interested in the --

14 MR. CAMERON: And your name, please?

15 MR. TAYLOR: My name is Steve Taylor. The
16 federal -- there is a slide here called federal register
17 notice, proposed rule for public comment, and it says,
18 "Who would this action affect?" It says, "This
19 proposed rule would affect existing and future LLW
20 disposal facilities that are regulated by the NRC," but
21 I would like to point out that it also affects people
22 in this state.

23 I look at my relatives from Southern Utah,
24 many of whom have died from the kind of undifferentiated
25 tumors and cancers that are typically caused by

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1 radiation. They were assured by the federal
2 government that the tests in Nevada would not cause any
3 problem here. Those who were involved in uranium
4 mining were also assured that there was no danger. And
5 you know what? They are all gone. Thank you.

6 MR. CAMERON: Okay, point well taken.
7 And, Jeremy, is anybody -- is there anybody on the phone
8 who wants to comment on this overview presentation or
9 ask a question?

10 PHONE OPERATOR JEREMY: If you would like
11 to make a comment or ask a question, please press star
12 one and record your name at the prompt. To withdraw
13 your question or comment, press star two. One moment
14 for the first question or comment. We do have a
15 question or comment. One moment for the name.

16 MR. CAMERON: Is there anybody there or
17 can we move on?

18 PHONE OPERATOR JEREMY: The first
19 question is from Lisa London. Her line is open.

20 MR. CAMERON: Good.

21 MS. LONDON: Hi, can you hear me?

22 MR. CAMERON: Yes.

23 MS. LONDON: Okay. It is really not a
24 question. I wanted to chime in. I know that there was
25 a question regarding fiduciary duty and Dave is going

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1 to take a crack at looking at that when you are dealing
2 with this section, and --

3 MR. CAMERON: Lisa, you are going to have
4 to repeat that and go a little bit slower so Kellie can
5 get it.

6 MS. LONDON: Sure, sorry about that, Chip.
7 I know that there was a question on fiduciary duty.

8 MR. CAMERON: Right.

9 MS. LONDON: And that Dave was going to
10 take a crack at answering that when he went through that
11 relevant section of his presentation.

12 MR. CAMERON: Right.

13 MS. LONDON: But if you need to reach out
14 to me, reach out to me.

15 MR. CAMERON: Oh, good. Thank you, Lisa.
16 Lisa London is the attorney in the NRC's office of
17 general counsel who is providing advice and counsel to
18 the NRC staff on this. So it is good to know you are
19 here, Lisa, or not here but up there in the sky.

20 Jeremy, anybody else?

21 PHONE OPERATOR JEREMY: Yes. The next
22 question is from Ruth Thomas. Your line is open.

23 MS. THOMAS: Thank you. I wanted to get
24 to the basics of this, and all along, there has been
25 the use of words that need to be defined. I mean,

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1 low-level gives the impression that it's not much of
2 a problem, and that is not the case, and the burial of
3 waste is not something that can be done with this
4 nuclear material.

5 Also, the word cleanup, the only thing
6 that -- and I think the gentleman, the first gentleman
7 mentioned that what is needed is isolation from man's
8 environment. So what we are having is a problem of what
9 to do with this waste, and it, at least in the past,
10 it goes back to what was decided when the decision was
11 made to use nuclear materials, to use the waste heat
12 for power for electricity, and this has brought about
13 all kinds of problems.

14 And there are evidence, there are
15 statements, and NRC documents which conflict with the
16 reality of the materials, like that table S.3, and the
17 idea we know more about radioactivity, and it is not
18 encouraging. I mean, these --

19 MR. CAMERON: Ruth, this is Chip, and we
20 really appreciate you calling in, and I think the NRC
21 recognizes the point that you are making. And for
22 everybody here, Ruth is one of our more steadfast
23 commenters on NRC activities. And, Ruth, you are in
24 South Carolina; is that correct?

25 MS. THOMAS: Well, I have lived in South

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1 Carolina. I live in North Carolina now.

2 MR. CAMERON: Okay.

3 MS. THOMAS: And --

4 MR. CAMERON: Ruth, thank you, thank you
5 very much, and we will surely hear from you later on
6 in the evening, but I am going to ask Jeremy to tell
7 us whether there is anybody else on the line.

8 PHONE OPERATOR JEREMY: Yes, we have one
9 final comment from Marvin Lewis. Your line is open.

10 MR. CAMERON: Marvin Lewis, okay.

11 MR. LEWIS: I am speaking from North
12 Philadelphia where we have had one of those interesting
13 little happenings, where a train in a railroad yard went
14 right off of its tracks at a 100 plus miles an hour,
15 putting 200 people in the hospital and eight people
16 dead. Oh, wow, an unusual occurrence. Gee, it says
17 an unusual -- anyway, my point one, Ruth was talking
18 about table S.3, and all the dosages are usually based
19 on the numbers in the table S.3.

20 And the numbers in table S.3 by your own
21 people, namely Walter H. Jordan, a judge of the
22 Three-mile Island hearing board, Three-mile Island,
23 No. 2 hearing board, pointed out many of the errors in
24 table S.3. In other words, you are basing your
25 dosages, you're basing your numbers of deaths on a table

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1 that has been shown to be just plain wrong.

2 Also, right now there is an effort within
3 the NRC to align the cause of avoiding radiation at a
4 higher number. In other words, most agencies in US
5 government use a number of \$9 million per avoidant death
6 is the reasonable cost. The NRC uses \$3 million for
7 avoidant death or radiation of -- or association with
8 it as a reasonable cost, one third of what the other
9 agencies of the US government needs.

10 MR. CAMERON: Okay, Marvin.

11 MR. LEWIS: Also, I want to point out what
12 Rickover said.

13 MR. CAMERON: Okay. After you point out
14 what Admiral Rickover said, I think we need to move on
15 to the next speaker. And I think people here probably
16 appreciate what you are saying about the NRC, but could
17 you finish up for us, please?

18 MR. LEWIS: All right. I am making a
19 comment, not a question, and I am just pointing out that
20 I feel this is a thoroughly premature act to look at
21 this rulemaking before we settle on how much it is going
22 to do for avoidant death of radiation.

23 Also, we are -- it's premature because
24 nobody has ever really looked at this question of what
25 table S.3 -- how long it is, and -- well, although it's

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1 been brought out by many people, including H. Jordan
2 from the NRC that I pointed out.

3 MR. CAMERON: Okay. Marvin, I am going to
4 have to ask you to stop now. I would say that you have
5 raised an important issue, and that issue relates to
6 the regulatory analysis that was done on this rule that
7 examined costs and benefits, and Dave Esh may be talking
8 about that a little bit more, and can tell you how you
9 can get a copy of that, and it is also fair game for
10 commenting. But right now, I am going to ask Steve
11 Dembek to come up and tell us about the rulemaking
12 process.

13 MR. DEMBEK: Thank you. Can you hear me?
14 Thank you, Chip. As Chip mentioned before, my name is
15 Steve Dembek, project manager. I work under Drew
16 Persinko, among others, and I am going to talk to you
17 today about why rulemaking. So Drew talked about why
18 we are doing this specific rulemaking. I am going to
19 talk in broader terms of why we do rulemaking in
20 general.

21 I am going to talk a little bit about the
22 draft guidance document. It is called NUREG-2175 that
23 goes along with the rulemaking. It helps to implement
24 the rulemaking. I am going to talk about the timeline,
25 when is all this going to happen, where to get copies

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1 of any pertinent documents, and how do you submit
2 comments on the proposed rule and on the draft guidance
3 document.

4 So why do we do rulemaking? We do
5 rulemaking to implement commission policy. The
6 rulemaking process makes provisions generally
7 applicable to all the licensees, as opposed to some
8 other methods we have, such as issuing orders or issuing
9 license conditions or exemptions. Those are specific
10 to whatever party receives the order or license
11 condition. When we make rule changes, it applies to
12 everyone unless something in the specific rule says it
13 doesn't.

14 Another reason we do rulemaking is it is
15 public process. You are all here with an opportunity
16 to comment. Normally we post a proposed rule in the
17 federal register, and people are given the opportunity
18 to comment, and we have to consider those comments
19 before we finalize the rule.

20 So how do we come up with some of these
21 proposed rules? Well, we look at various lessons
22 learned. We look at any proposed rulemakings we get.
23 We look at inspection activities, what we learned from
24 inspection activities at different facilities. So we
25 use all that information to come up with our proposed

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1 rulemaking. And in this case, the proposed rule was
2 issued for public comment on March 26, 2015, and it has
3 120-day comment period, which expires on July 24, 2015.

4 Now I will talk a little bit about the
5 guidance document, which I mentioned on a previous
6 slide. The guidance document is called -- it has a
7 NUREG number, 2175. The guidance document was also
8 issued on March -- in federal register notice on March
9 26th, asking for public comment. It also has a 120-day
10 comment period on it. And the guidance document gives
11 more information to regulators and licensees about how
12 to implement the proposed rule.

13 And this is a draft document for comment.
14 We appreciate any comments we get on the NUREG, and the
15 NUREG has flow charts, guidelines for what licensees
16 should include, and what regulators should review on
17 their analyses, and any -- it has references, and a lot
18 of other materials. It's a very, very -- Dave Esh will
19 talk about this a little bit, but it is a very thick
20 document.

21 So what is our timeline? What are we
22 working -- when will this see completion? Well, this
23 is -- it notes on the bottom -- the note on the bottom
24 shows the dates are approximate because depending on
25 the type of comments we get, the process may take longer

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1 than envisioned. But, basically, we are in the
2 upper-left portion of this slide, the public meeting
3 and comment period, and starting in August, after the
4 July 24 comment period ends, starting in August, we are
5 going to develop responses for comments and propose a
6 final rule to the commission.

7 And then eventually, we will publish that
8 final rule, and then after the final rule has been
9 published, it will become effective one year later, and
10 then the agreement states will have three years after
11 that to implement it. And the line below that shows
12 the guidance document is going to follow a similar
13 process but not as formal of a process, so we are going
14 to develop responses to any comments we get, and then
15 we will publish the final guidance.

16 And how do you get copies? How do you get
17 more information? The best source is our website,
18 which is www.nrc.gov, and then go click on tab
19 radioactive waste, and then you go down to low-level
20 waste disposal, and then you go down to site specific
21 analysis rulemaking.

22 And then secondary, assuming the internet
23 still works, I will walk you through this so you can
24 see what the website has on this. But the website at
25 the bottom there tells you different things the website

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1 has. Redlined strikeout versions of the proposed
2 changes, so you can see what is changing from the
3 current regulations. It makes it easier to look at
4 that.

5 It tells you the document numbers of the
6 regulations because when you comment, you have to list
7 the appropriate document number so we know what -- so
8 the administrative people know exactly what you are
9 commenting on. It tells you how to use our NRC document
10 access and management system, also called ADAMS, how
11 you can use ADAMS to find different documents by using
12 those numbers there on the lower right. And you can
13 also, of course, come to your public document room at
14 the NRC in Rockville, Maryland, to get this
15 information.

16 This shows the NRC website. When you
17 come -- this is just nrc.com it shows at the top there.
18 When you come, the directions I gave you is go to the
19 tab radioactive waste, and then another menu pops up,
20 and you click on low-level waste disposal. And then
21 on the lower right side, you will see an area called
22 site specific analysis rulemaking, and that is what I
23 am going to click on, and that is the rulemaking we are
24 talking about tonight.

25 So you can come to that, and right away,

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1 there's a tab you can click on to see specific comments.
2 It talks about the history of this issue. It has links
3 to all the pertinent documents that Drew mentioned and
4 that David Esh will mention later. I am going to go
5 down a little bit. It tells you basically why we are
6 doing rulemaking with a lot more details than what Drew
7 gave you, and it gives you the meetings we are having,
8 same as the slide that Drew presented earlier.

9 And here, the proposed rule language and
10 redlines strikeout, you can click on that. Here's the
11 federal register notices for the proposed rule, the
12 proposed federal registry notice for the guidance
13 document. The actual guidance document itself.
14 There is basically a wealth of information here. And
15 these meetings that we are having, for every meeting,
16 we post the briefing material for the meeting, and also,
17 once we get the transcript of the meeting, so you can
18 read all this information, whenever you are interested
19 in looking at this.

20 Now I will go back to the slide
21 presentation. So the comment submittal process, this
22 is the comment submittal process for the proposed rule.
23 Please include docket ID NRC-2011-0012 in the subject
24 line of your comments. And for commenting on the
25 proposed rule, we have four different ways you can

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1 comment on the proposed rule. One, you can go to the
2 overall federal government website,
3 www.regulations.gov, and search for documents filed
4 under the appropriate docket number there. You can
5 also mail your comments to the secretary of the US NRC.
6 You can email comments to the special NRC email site
7 we have. You can hand-deliver comments to us in
8 Rockville, Maryland, or you can fax your comments to
9 us at the -- again, the secretary of the NRC.

10 The comment submittal process for the
11 implementation guidance is different. So first of
12 all, it has a different docket number, NRC-2015-0003,
13 and for this, we have two different methods for
14 submitting your comments. Again, regulation.gov,
15 and, again, you have to use the different docket number,
16 and you can also mail your comments, and this is a
17 different mailing address. This is a branch chief in
18 our office of administration at the NRC. And as it has
19 been previously mentioned, we are also going to go
20 through the transcript of this meeting, and all the
21 other meetings, and look for comments.

22 So that completes my presentation. If you
23 have any questions, you can obviously look at the
24 website I mentioned, and you can contact me or any other
25 project manager involved with -- he's a rulemaking

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1 project manager, Gary Comfort, and so you can use any
2 of us, and I will be happy to take any questions now.

3 MR. CAMERON: Great. Let's go to Naomi,
4 you have a question, and you are going to speak up so
5 Kellie can hear you. Okay?

6 MS. FRANKLIN: Is that information on the
7 slide available in these written pages?

8 MR. CAMERON: Yes, you have a copy of all
9 the -- all the presentations were out front. It is the
10 one that has my name on the front. Okay, thank you.

11 Sorry, introduce yourself, please.

12 MR. FRANK: I am John Frank. I am sure you
13 grappled with this: If you make a rule that is supposed
14 to last for five years, you can say, "Every year, I am
15 going to check up on things and make sure you follow
16 the rules," but you are making rules that are going to
17 last for 1,000 years or 20,000 years. How do you do
18 that?

19 MR. CAMERON: Okay, that's outside the
20 rulemaking process question, but, Dave, do you
21 understand what John is saying?

22 MR. ESH: Yes.

23 MR. CAMERON: Do you want to talk to that
24 now, please?

25 MR. ESH: Well, I can talk to it now, and

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1 as I cover my materials, hopefully you will get some
2 information, too. But, so the question is, basically,
3 this is a very potentially persistent, long-term
4 problem that you are looking at, and the rulemaking is
5 a present day, short-term action. There are elements
6 to it that are longer term.

7 For instance, the facilities will be
8 operating usually for multiple decades, that you have
9 regulatory oversight while it is operating, you collect
10 monitoring information while it is operating. And
11 then we also have an institutional control period of
12 up to 100 years after the facility closes, where it has
13 to have access controls of the facility, and
14 environmental monitoring will be performed after
15 closure of the facility.

16 But the regulatory process, you are
17 correct, after those steps are done, then there isn't
18 further regulatory oversight. That is part of what
19 this rulemaking process is about, to try to provide
20 appropriate criteria to apply, to ensure that safety
21 can be preserved for that longer time period after
22 regulatory oversight has ended.

23 So as I go through each of the elements,
24 that is -- I will ask you to look at those, and kind
25 of think of what comments you may formulate, either now

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1 or to send into us, whether those requirements are going
2 to achieve that objective or not.

3 MR. CAMERON: Okay, thank you. Anybody
4 else on rulemaking process before we go to the phones?

5 Okay, Jeremy, is there anybody on the phone
6 who has a question about the rulemaking process?

7 PHONE OPERATOR JEREMY: We have one in
8 queue, and as a reminder, if you would like to ask a
9 question, press star one. Diane Dalego, (sic) your
10 line is open.

11 MS. DALEGO: Hi, this is Diane Dalego. I
12 am a senior -- information and resource service. I
13 would like to officially request, and I will also write
14 this in, but request an extension on the comment period
15 for this rulemaking, both the rulemaking itself and on
16 the technical backup document.

17 MR. CAMERON: Okay, thank you, Diane.
18 That came across loud and clear.

19 MS. DALEGO: I am trying to speak quietly.

20 MR. CAMERON: Okay.

21 MS. DALEGO: We'd also like to have an
22 extension of the comment period.

23 MR. CAMERON: Okay. And, Steve?

24 MR. DEMBEK: Yes, thanks, Chip. Thanks,
25 Diane. That is a point I did not cover in my

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1 presentation that I should have. If you are going to
2 give us comments, it is most helpful for the NRC staff
3 if you have a basis for -- let's say you think the
4 regular -- proposed regulation is too long. Well, tell
5 us what is too long about it, or if you want an
6 extension, tell us why you think you need an extension.
7 That is -- that kind of information is a lot more helpful
8 to us than "I don't like the rule," or "The rule is too
9 long," "The rule is too short." Something with a
10 little bit of a basis behind it would be helpful to us.

11 MS. DALEGO: The rule is too lax, it
12 doesn't protect the public health, it is not
13 enforceable, and we need additional time if we are going
14 to get into the technical specifics of all of these
15 issues.

16 MR. CAMERON: Okay, thank you, Diane.
17 Let's go to Dave Esh.

18 MR. ESH: All right. Thank you, Chip.
19 As Drew had said, we are happy to have you here tonight.
20 We were out here in 2009, and I always felt that the
21 input we receive from the Utah stakeholders,
22 regulators, and members of the public were very useful
23 to us in 2009, and even so far tonight, I feel they have
24 been useful.

25 We can go to the next slide, Steve. I am

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1 going to provide an overview, just kind of high-level
2 overview of some of the information, and then step
3 through some of the more significant rule topics in
4 detail. There is an "Other" category, that if you have
5 a question or a comment that doesn't fall in any of those
6 bins, you are -- certainly feel to comment on any
7 subject that is important to you or that you have a
8 comment on.

9 I am also briefly going to mention the
10 guidance document. The guidance document is a useful
11 part of this regulatory process because as you may be
12 aware, you can usually only put so much information in
13 a regulation. A lot of the information about
14 implementation of the regulation will fall in our
15 guidance documents. So that is a useful tool that we
16 use, and it is an important tool, and hopefully we can
17 get some feedback from you on that, too. Next slide,
18 please.

19 This is a diagram from NRC's public
20 website, radiation doses and limits. It is just to
21 provide you some context of what we are talking about
22 tonight. So NRC has annual nuclear worker dose limit
23 of 5,000 millirems that is shown on the far left-hand
24 side of the figure. We also have an annual public dose
25 limit of 100 millirems shown in the center there.

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1 Those are both in green.

2 In the proposed rule requirement that we
3 will be talking about tonight, we have a couple dose
4 limits. We have a 25 millirems dose limits to any
5 member of the public that applies to the 61.41
6 performance objective. So you can see from the figure,
7 that is in the range of doses that you get from your
8 body or from cosmic rays. Then we also have a 500
9 millirems dose limit that we apply under 61.42 in the
10 proposed rule. That is for receptives that we call
11 inadvertent intruder, and I will cover that in more
12 detail who that first conceptual person is and what they
13 may be doing. This isn't to trivialize the radiation
14 exposures that you might get from a radioactive
15 facility. It's just to provide some context to you.

16 So, also, I will point out, you know, if
17 you live in a state such as, say, North Carolina and
18 you move to Colorado, you are talking about a change
19 in your dose, actual dose, that you receive today, or
20 your family received today, something in the order of
21 a couple hundred millirems. So there is radiation in
22 the environment, the anthropogenic, or the man-made
23 sources are part of that, but there are a lot of natural
24 sources of radiation in the environment.

25 Now, there is one thing that you can do for

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1 your own radiation safety and that of your family is
2 to get your house checked for radon because you can get,
3 in some cases, very large doses of radon from your house
4 from the natural environment. Next slide, please.

5 So what is in this proposed rule that we
6 are talking about here today with you? We are
7 proposing to amend our regulations that govern
8 low-level radioactive waste disposal facilities. And
9 the top two bullets and the fourth bullet are really
10 the main elements of what is being proposed or required
11 in the rule. We are having new and revised site
12 specific technical analyses to demonstrate that the
13 performance objectives are met. I am going to talk about
14 each of those in some detail in the slides that follow.

15 Another main element is that we are
16 permitting the development of site-specific criteria
17 for low-level waste acceptance based on the results of
18 these analyses. So that is different in this proposed
19 rule, and I will talk about that in detail, also.

20 And the last element is also to ensure that
21 the licensing decisions are based on defense-in-depth
22 protections. That is a new requirement that -- based
23 on the direction the commission gave us, and before we
24 issued this proposed rule, they provided direction to
25 include defense-in-depth protections to apply to

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1 low-level waste disposal. So that hasn't been
2 explicitly or formally done before. It's done in other
3 nuclear safety systems but not in the low-level waste
4 disposal systems. So the next slide, please.

5 Who will perform these technical analyses
6 or these requirements will apply to? Well, right now,
7 there are four operating commercial low-level
8 radioactive waste sites in the US, in Washington, Utah,
9 Texas, and South Carolina. Down in the right-hand
10 corner of this slide are the different facilities, the
11 types of waste that they take, and then some compact
12 restrictions that may apply to those disposal
13 facilities. Of course, if you live in Salt Lake City,
14 you are located near the Clive facility in Utah. Next
15 slide.

16 So this is a high-level picture, diagram,
17 that just communicates the type of questions that may
18 be coming out of this rulemaking. You can read the
19 regulatory text. I have very little of that in my
20 slides tonight because we only have three hours for the
21 meeting, but, of course, we are here on your dime, so
22 to speak. The meeting will try to end around 9:00, but
23 we will stick around and talk with you and answer any
24 questions you may have afterwards.

25 But the high-level questions that may come

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1 to mind if you are a licensee or an agreement state
2 regulator or even a member of the public, what is this
3 all about, are on this slide 6. So how do I develop
4 the right scenarios for my performance assessment?
5 What am I looking at? Who are the people that are
6 exposed? How will my radiation be released from the
7 facility? How can I demonstrate that my site is stable
8 for 10,000 years? How -- what should I do to
9 demonstrate that my facility includes the
10 defense-in-depth protections that I mentioned? Do I
11 need to do a performance period analysis for my site?
12 How do I demonstrate that I have minimized doses for
13 the protective assurance period, or how do I develop
14 waste acceptance criteria for my site? These are just
15 the types of questions you may be thinking of. There
16 are many more. I am going to go through the main
17 elements of the rule that addresses these types of
18 questions that you might have. Next slide, please.

19 This is a diagram intended to convey the
20 context of how these requirements are fitting together.
21 I think it is a useful diagram. You may not. It might
22 be a helpful tool to use when you are looking at the
23 rule language and/or the guidance document to
24 understand how the things are fitting together. So at
25 the top, the blue bubble at the top is the assessment

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1 context and scenario development. That is basically,
2 how do I get the scope right for all the analyses that
3 I am performing? The analyses are found below there
4 on the three vertical blue lines in the middle that say
5 performance assessment, intruder assessment and
6 stability analysis. So how do I get the context and
7 scenarios to write for the serious analyses?

8 On the far left coming across are the three
9 time periods that apply for those analyses; the
10 compliance period, the protective assurance period,
11 and the performance period, and I am going to talk about
12 that next, right after this introduction. The
13 defense-in-depth protections on the right, they apply
14 to all the different types of analyses and time periods,
15 and then at the bottom, that all flows into
16 demonstrating that you meet the performance objective.
17 So go ahead to the next slide, Steve.

18 So the rule topics were on the initial
19 second slide that I had. I am not going to read those
20 for you, but I want to reiterate, there is an "Other"
21 box there, so if there is something that you have that
22 doesn't fit in one of the boxes, certainly feel free
23 to ask it or to make your comments.

24 MR. CAMERON: Dave, when you go through
25 these, we are going to stop and go out to you after each

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1 one, but, Dave, when you see the most appropriate place
2 to address Cindy's question that we have in the parking
3 lot about the fiduciary, please do that.

4 MR. ESH: Right, and as Lisa indicated,
5 that might be a better question to give to her because
6 I am an engineer, and I don't intend -- I don't claim
7 to be a lawyer or a play a lawyer. So, I mean, I can
8 give you the engineer version of the answer to your
9 question, and you can also get the legal answer to your
10 question, if you would like that. But let's go on here,
11 and then I will address that maybe in the performance
12 assessment area. And if I forget, remind me and re-ask
13 that after that session, and we will talk about it.
14 Next slide, please.

15 So the first main topic that I am going to
16 discuss is the analyses timeframes. This is a very
17 complex issue. It doesn't seem like it should be but
18 it is. We have had expensive stakeholder input on this
19 topic, a variety of meetings. We developed a white
20 paper for our initial recommendation, which was a
21 10,000 year compliance period, followed by a
22 performance period. That's -- and the ML number
23 provided here, that is a document number at NRC that
24 you can use to find that paper and look at it if it would
25 help you formulate your comment or questions.

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1 Then after we developed our initial
2 recommendation, the commission provided direction to
3 us in this SRM-SECY-13-0075. That is basically how
4 these five commissioners communicate with the staff.
5 In that direction, they provided us a 3-tier approach
6 to use for the analyses timeframes, and that is what
7 I am going to talk about in the three topics as we go
8 through them here.

9 But we are seeking your input on the
10 analyses timeframes, especially the compatibility
11 designation. So compatibility is an important topic
12 for rulemaking at NRC because it defines how the
13 agreement state programs have to write their
14 regulations. And in the direction from the
15 commission, they said all significant portions of this
16 rulemaking should be compatibility B, which means the
17 agreement state programs have to be essentially
18 identical to what NRC has described. That means if NRC
19 says the compliance period is 1,000 years, all the
20 agreement states would use 1,000-year compliance
21 period, even if they were using something longer at this
22 point in time, which is, in fact, the case. They all
23 have been using something longer. So next slide,
24 please.

25 So the analyses timeframes and the

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1 considerations we put into of what we recommended of
2 the waste characteristics are the primary ones because
3 that is something that you know pretty well today. You
4 can get a handle on what you think some of the
5 uncertainties are, but some of those are hard to judge
6 and hard to manage.

7 We also looked at the domestic experience
8 in this area, so what has been done in other
9 regulations, what has been done by the state programs,
10 where they are now in the timeframe. And then we look
11 at international experience, too, and so throughout the
12 world, what do people do with their analyses
13 timeframes.

14 And then pass commission policy, too,
15 because NRC regulates many different things, not just
16 low-level waste; high-level waste, uranium mill
17 tailings, and decommissioning, those are three areas
18 where analyses timeframes are prescribed for other
19 programs.

20 These three figures that are on here, I
21 don't intend for you to read them. They are in your
22 backup slide, so you can see there is a version there
23 that you can see. They are intended to address three
24 of the five bullets that are on the side there; waste
25 characteristics is the upper right-hand corner,

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1 uncertainty is the kind of multicolored crazy one there
2 in the lower right, and then the table down at the bottom
3 is the domestic experience. Okay, next slide, please.

4 I mean, I talk with my hands. One meeting,
5 I knocked a cup of water across the table, so I'll warn
6 you, I have a laser pointer now. What are the
7 timeframes and dose limits for the analyses? So this
8 is what is in the proposed rule that you will review
9 and be commenting on.

10 The analyses timeframe is a 3-tier
11 approach that was given to us in this SRM-SECY-13-0075
12 by the commission, it starts with a compliance period
13 that begins with site closure and goes out to 1,000
14 years after site closure. So that's your compliance
15 period. For the two main performance objectives that
16 you're assessing dose is in 61.41, protection of the
17 general population, and then 61.42, protection of the
18 inadvertent intruder.

19 There are -- those limits and ALARA that
20 apply for those two timeframes, the public dose
21 limit -- it's a dose limit in 10 CFR 61.41, the proposed
22 rule is 25 millirems per year and the ALARA, and then
23 for the protection of the inadvertent intruder, it's
24 a 500 millirems per year dose limit. The protective
25 assurance period extends then from 1,000 years out to

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1 10,000 years, and the standard to apply to minimize the
2 radiation doses during those timeframes to 500
3 millirems -- to a 500 millirems target or other limit
4 that can be justified based on economical and technical
5 consideration.

6 So this second tier of analyses is, and I
7 will talk about it in more detail, is really an
8 optimization-type process. It is not a standard
9 "Estimate doses and compared to a limit." It is a
10 little bit different. Optimization is used a lot for
11 remediation problems, but it's not used as much, at
12 least internationally, in a disposal-type problem. So
13 that is a little different for this regulation compared
14 to what you might see elsewhere if you go out exploring.

15 And then after the 10,000 year period,
16 there is performance period that doesn't have numerical
17 goals, but it has a, let's say, qualitative or limits
18 that is minimized to the extent reasonable achievable,
19 your radiation doses. This performance period only
20 applies if you have sufficient concentration and
21 quantities of long-lived waste that you are going to
22 dispose of in your facility.

23 So the analysis could effectively be a
24 2-tier approach if you don't have a lot of long-lived
25 waste. If you have a lot of long-lived waste, it will

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1 be a 3-tier approach. This 3 tier, the way I look at
2 it is it is a tier that we added to ensure transparency
3 of the information and the analyses with the
4 stakeholders. So, even those people disagree about what
5 you should be doing with those very long-term doses and
6 what they even mean, at least you should generate the
7 information so that people can discuss them. So that's
8 the way the analyses timeframes are structured in this
9 3-tier approach. Next slide, please.

10 We do have some definitions. These are
11 directly out of the regulation. I am not going to cover
12 the 3 tiers of the analyses timeframes again because
13 I just covered them in detail, but the other one is the
14 long-live waste definition. So, what is long-lived
15 waste? How do I know if I have to do that performance
16 period analyses? This is the definition that we are
17 proposing to use to determine if something is
18 long-lived waste. It is including radionuclides that
19 are both themselves long lived, or potentially produce
20 progeny as they decay that are long lived. So it has
21 both of those components in the definition as proposed.
22 Next slide, please.

23 So what we are seeking feedback on is the
24 overall approach, the 3-tier approach with the various
25 analyses applied, and I will talk about the protective

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1 assurance period and the performance period analyses
2 in more detail after this. The compatibility
3 designation for this, or the fact that the commission
4 said, "Go out with compatibility B but seek public
5 comment on that approach," and then the long-live
6 wasted definition, how you determine if something is
7 long-lived or not.

8 MR. CAMERON: Okay. Thanks, David. Any
9 commentary here in the room on this topic, the analysis
10 timeframes? Let's go to Matt and then we will go to
11 the woman in the back of the room. Matt.

12 MR. FERCHEN: Sure. So I guess I have a
13 question, which like most questions are, there is a
14 comment built into it, and I just -- you folks talked
15 at the beginning, and I want to reiterate it for,
16 perhaps, other people in the room, that there was a
17 preliminary proposed rule language, in May of 2011, and
18 then the commission gave you all the series of direction
19 and orders.

20 So there was preliminary proposed rule
21 language from the NRC staff in May of 2011, and in
22 February of 2014, there was orders, directions from the
23 commissioners. And there's a few areas, and this is
24 definitely one of them, in which there was a rather
25 sharp contrast between what the staff concluded -- you

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1 spoke about reviewing what other agencies do, looking
2 at the research, all the things international, you did
3 all that, staff did it. Staff said the compliance
4 period should be 20,000 years. Okay?

5 And, you know, there was a whole
6 justification of that, a rationalization, explanation,
7 a very thorough accounting as to why that was the
8 timeframe that we should know precisely what the risk
9 is, what the dose is, what it should be. And then a
10 little less than three years later, the commission came
11 in and said, well in fact, it should only be 1,000 years.
12 It is a dramatic difference. I think we can all agree
13 it is a really dramatic difference to go from 20,000
14 years to 1,000 years.

15 And I don't want to be cynical and I don't
16 want to cast dispersions or anything, but that also
17 happens to be the precise timeframe that the regulated
18 industry here in Utah put in its comments. And Energy
19 Solution said, in fact, the NRC stated in June of 2011,
20 after the May 2011 draft language, they said, of the
21 view that while the compliance period of 10,000 years
22 may be workable, the compliance period of 1,000 years
23 is preferable. Then, of course, the commissioners did
24 precisely that.

25 So how do we justify that dramatic change

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1 in the length of the compliance period? Did the
2 science evolve dramatically from 2011 to 2014? Did we
3 have a whole bunch of new knowledge that led us to
4 conclude that, in fact, we could be 95 percent shorter
5 in the amount of time we look at that? It is hard to
6 not have a cynical response to that dramatic change,
7 given the relatively short timeframes, given all the
8 hard work the staff did, and then given sort of the edict
9 that was handed down. Thank you.

10 MR. ESH: Right. And I think that is a
11 good comment, and I certainly understand it. And, of
12 course, I guess I am sympathetic to it because I was
13 on the receiving end of that direction. So, you know,
14 I think part of where they were coming from, they
15 did -- they wanted to consider uncertainty and
16 uncertainty in longer timeframes, and how basically
17 meaningful the information is that you might generate
18 from these analyses.

19 Now, as a practitioner of performance
20 assessment, I know a lot about what goes into them. I
21 spent a lot of time looking at uncertainties and trying
22 to understand them and propagating them through these
23 analyses, and I think there's a kind of impression that
24 there is a lot more certainty associated with 1,000 year
25 analyses than a 10,000 year analyses, but my personal

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1 opinion is that is not correct. Okay?

2 So there are uncertainties for all sorts
3 of components of the analyses, from the natural system
4 and how the engineered systems are going to behave, but
5 then especially what are people doing. And the example
6 I like to give is Las Vegas; so, if you could go back
7 in time 300 years to where Las Vegas is, and whoever
8 is living there, you ask them, "What is going to be here
9 300 years from now," I don't think they would do a very
10 accurate estimate of what, in fact, is in Las Vegas
11 today.

12 So the societal component can be very
13 dramatic and volatile and change a lot, and that is
14 something we considered in our approach. And my view
15 was, you should make your requirements based on what
16 you most know today, and those are things like waste
17 characteristics, and maybe to some extent the behavior
18 in natural systems, you can do a pretty good estimate,
19 because disposable, in general, is putting things under
20 the ground and you are looking at slow-moving
21 components, like geology, not, say, an active
22 component, like a river system or something like that.

23 So that is part of the consideration, but
24 the real answer I believe is, as I indicated on my first
25 slide, there is a diversity of opinions on this topic,

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1 and the commission at that time and the composition that
2 they had, they had a different opinion and a different
3 interpretation of the information than we did whenever
4 we sent up our recommendation. And they are the
5 policymakers. You know, they give us directions, and
6 we do to the best of our ability to implement their
7 directions.

8 MR. CAMERON: Thank you, Matt. Thank
9 you, Dave. Can you please introduce yourself to us?

10 MS. JENSEN: My name is Janet Jensen. So,
11 I have several times heard Energy Solutions be very
12 candid and very open and very public about the fact that
13 depleted uranium gets hotter and hotter and hotter for
14 2.3 million years. And for humans, for the human
15 species, that is basically forever. So how does the
16 NRC decide that they should assess the safety of
17 depleted uranium with a cut off of 10,000 years as
18 opposed to 2.3 million years?

19 MR. ESH: Right. Well, for the -- as
20 proposed in that 3-tier approach that I went over, that
21 performance period would apply to a waste stream, like
22 the depleted uranium, and there is no limit on that as
23 to the timeframe you should analyze. So, at least an
24 analysis of some sort should be performed for the
25 depleted uranium that may apply to those very long

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1 times. It is not termed a compliance period or a
2 protective assurance period. It is termed something
3 else.

4 But the way our regulations are structured
5 is we have our performance objectives in 61.41, 42, 43
6 and 44, and 61.41, and 42 especially, you have to
7 demonstrate that you can meet those performance
8 objectives. As this regulation is written out and
9 proposed, it has an A, B and C. You have to demonstrate
10 that you can meet all A, B and C, not just A or not just
11 B if you have this large amount of long-lived waste.
12 61.41(C) and 61.42(C) are both going to apply to that
13 material.

14 MS. JENSEN: So will you test for safety
15 and will you be testing for safety for 2 million years?

16 MR. ESH: Right. Well, the analysis for
17 that timeframe, as I indicated, it doesn't provide a
18 limit on the timeframe for the analyses. There is no
19 cut off for how long you should evaluate for. And that
20 analyses, though, there is a lot of debate, there was
21 a lot of debate as we tried to develop that position,
22 both internally and if you look at international
23 programs, as to how valuable that information is that
24 you might generate and how should one interpret it.

25 Everybody has a different view on the

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1 topic. You know, my personal view is probably different
2 than what is found in the proposed regulation. So what
3 is implemented there, though, is a requirement to
4 evaluate or to demonstrate how your system is going to
5 perform for the material that you disposed of. And I
6 will talk about that performance period in more detail,
7 but there is an analysis to be performed for those very
8 long timeframes.

9 MR. CAMERON: So when you get to that
10 performance period --

11 MR. ESH: Right. If I don't answer your
12 question there, feel free to pose it to me again, and
13 I will try to answer it again.

14 MR. CAMERON: Please introduce yourself
15 to us.

16 MR. CODELL: I'm Richard Codell. My
17 question is about the performance period, and sorry,
18 you said you would cover that more, but let me just ask
19 it anyway. You said -- the wording on the slide said
20 minimized to the extent reasonably achievable, and is
21 that for the site as built? Is that for better
22 engineering measures alone, or could it also include
23 choosing a more stable site?

24 MR. ESH: Right. The minimized to the
25 extent achievable, I think, is more focused on the

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1 engineered system, the engineered components, what you
2 might be able to change about the system. But as
3 you -- especially as we look at this protective
4 assurance period, the middle tier of it, I think that
5 is an area where you could possibly ask a question of
6 "Is this the right site for this material?"

7 If you are -- you know, disposal is
8 different than remediation. Disposal, you are
9 choosing to put something somewhere. So if you are,
10 in your analyses, are estimating large impacts from a
11 choice to dispose, is there a better location where you
12 could dispose of it that would not have those large
13 impacts, I think that is a fair question to ask. Now,
14 if your doses are low, or reasonable, or inline with
15 the standards in the earlier compliance period, then,
16 you know, maybe that is not a consideration because you
17 are saying, you know -- or going to be comparable to
18 what would be any sort of facility at the different
19 location. So we can revisit that, too, if I don't
20 address it well enough for you.

21 MR. CAMERON: Okay. We are going to go
22 here. Yes, sir.

23 MR. TAYLOR: Thank you very much. You
24 know, you are the NRC, and it is understandable that
25 you are assessing the nuclear effects of this material,

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1 but our Navajo friends who live downstream from -- and
2 obtain their water from watersheds that were affected
3 by mining for uranium in the '40s and '50s, have had,
4 as I understand, catastrophic effects. That is mostly
5 U-238. Right? U-235 is a very small component, and I
6 would imagine that this low-level depleted uranium has
7 a very small initial component of U-235.

8 MR. ESH: You are correct.

9 MR. TAYLOR: It is mostly U-238. Do you
10 consider other kinds of toxicity in your evaluation of
11 a particular site or a particular policy?

12 MR. ESH: Right, and --

13 MR. CAMERON: Your name, sir?

14 MR. TAYLOR: Steven Taylor again.

15 MR. ESH: Right. The NRC, we evaluate
16 radiological risk, and we believe the radiological
17 risk, or the dose level that we evaluate, in many cases,
18 are comparable to the levels of chemical risk or
19 chemical toxicity that you might evaluate.

20 Uranium is a little bit different beast,
21 though, because uranium can cause problems with kidneys
22 especially, and it can have some chemical toxicity
23 effects. So that is a good comment. We have heard it
24 from some other commenters throughout this process, and
25 all I can say at this time is it's a good comment, and

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1 we acknowledge it.

2 MR. CAMERON: Okay. Thank you, Steven.
3 We are going to go here and here, then we will see if
4 there is anybody on the phone.

5 Yes, sir, please introduce yourself.

6 BOB BRISTER: My name is Bob Brister. I
7 live here in Salt Lake City. My question is, is this
8 waste material still being produced, how much is being
9 produced, how long do we anticipate it being produced,
10 and are these the only sites that are being targeted
11 for this waste?

12 MR. ESH: Right, okay. So the material is
13 still being produced. It is produced in the uranium
14 enrichment process. So there is commercial enrichment
15 processes; Louisiana Energy Services and also in New
16 Mexico that generates depleted uranium. There is a
17 large amount of depleted uranium that has already been
18 generated. Most of it is in a form of uranium
19 hexafluoride, which is a gas, in canisters; Paducah,
20 in Portsmouth, I believe. It's in -- if you have never
21 seen it, you know, go on the internet and look it at.
22 It is basically massive football fields, an area of
23 these canisters that hold this material.

24 So that material has been generated and
25 something has to be done with it. Those canisters are

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1 made of steel. You know, steel in the environment
2 lasts so long. You can look around you and see carbon
3 steel and other types of steel corrosion that happens.
4 So is it a pressing need right now? Is it an emergency?
5 I don't think so, but is it a problem that needs to be
6 addressed? Yes.

7 There has been some question or comment
8 about whether this material is a waste or whether it
9 is a resource. We work on the disposal end, so we don't
10 necessarily make any policy or have any opinion about
11 whether it is a waste or a resource. If somebody wants
12 to dispose of it as a waste, our job is to develop the
13 criteria that you would apply for it. So, it is being
14 generated. The commercial generation will come up
15 with -- or I think will total about 700,000 metric tons.
16 There's already about 700,000 metric tons that have
17 been generated, so there's about 1.4 million metric
18 tons of the material that is either generated or will
19 be generated. Then the rest of it depends on the
20 nuclear fuel cycle because it comes out of the process
21 for making the fuel for the nuclear fuel cycle.

22 MR. CAMERON: Okay, thank you. Yes, sir.

23 RICHARD: Hi, my name is Richard. I am
24 with the Brigham Young University Chapter of the
25 American Nuclear Society. We are applying for

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1 official recognition, which we expect within a next
2 couple of weeks, and I just had a question about -- well,
3 my first question is, you have this table of goals for
4 doses in general population and protection of an
5 inadvertent intruder. As far as the 3-tier analysis
6 is concerned, is that the only thing that you guys are
7 considering changing in these new regulations, what is
8 in this table?

9 MR. ESH: No, there are other changes to
10 the regulation that I will cover. This was kind of the
11 first topical area. This 3-tier analysis is one of the
12 key issues because of the depleted uranium is -- it's
13 a uranium that is very long-lived, and the depleted
14 uranium is basically cleaned of the daughter products
15 from the uranium decay chain. So the material today
16 is different than the material you will have in your
17 1,000 years, 10,000, and then the 2.3 million --

18 RICHARD: Right. I was just wondering if
19 this is all we need to know about the 3-tier analysis.

20 MR. ESH: Right. About the 3-tier
21 analysis, yes, I think conceptually, or structurally,
22 this is what you need to know about it, but I am going
23 to cover the middle tier, the brownish area here in more
24 detail, and then the performance period section in more
25 detail as we go forward here.

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1 MR. CAMERON: Second question?

2 RICHARD: Yes, okay. My other question
3 was, it says protection of general population under
4 column No. 1.

5 MR. ESH: Right.

6 RICHARD: I imagine that is cumulative to
7 the entire population?

8 MR. ESH: That is individual dose limit.

9 RICHARD: That is individual dose limit?

10 MR. ESH: That is not a population dose.

11 RICHARD: And I guess I would ask a final
12 question, it seems to jump from 25 millirems per year
13 to 500 millirems per year after a 1,000 years. Is that
14 based on anticipated degradation of the facility or --

15 MR. ESH: I don't believe so. I believe
16 the approach -- if you look at the right-hand side of
17 the figure, there are some texts here on the side that
18 says, "Increasing uncertainly, flexibility to
19 licensees and decision makers." So that middle tier,
20 the 500 millirems, is not a limit. That is a target,
21 and you can look at the specific proposed language in
22 the regulation, but the standard is to try to minimize
23 the impact during that period.

24 And as I am going to talk about in this next
25 section, or two sections from now, it is an optimization

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1 process, so you are trying to make things as low as you
2 can. Where -- how low you make them will depend on your
3 specific problem, the waste, and your system, that sort
4 of thing.

5 MR. CAMERON: Okay. We really need to see
6 if anybody on the phone has some questions.

7 Jeremy, people on the phone, questions?
8 Comments?

9 PHONE OPERATOR JEREMY: As a reminder, to
10 ask a question or make a comment, please press star one.
11 And we do have one question or comment in the queue.
12 One moment for the name, please. And the question or
13 comment is from Diane Dalego. Your line is open.

14 MS. DALEGO: Hi. I have two questions;
15 one is whether the staff would ever decide to implement
16 or to make a regulation that is more protective than
17 the commissioner directs to you in the first place.
18 You had said that the commissioners made decisions on
19 what you needed to do. So are those decisions final,
20 despite whatever the public or the stakeholders would
21 say, and, you know, what flexibility is there in that?

22 MR. ESH: Right. And the answer is, if we
23 want to remain employed, then we implement the
24 commission's direction. So, but we do have a process
25 to voice a differing opinion on decisions. We have a

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1 differing professional opinion process where we can
2 voice it if we don't agree with something that the
3 commission did, and there is a mechanism within the
4 agency that someone reviews that material.

5 But the answer to your question about would
6 we implement something that was different than they
7 proposed, or, you know, more restrictive? No. And I
8 think there was another part to it. What was the second
9 part, Diane?

10 MS. DALEGO: The second question is
11 whether -- I think this is maybe kind of what John Reese
12 was asking you for yesterday. Have you applied the
13 performance assessment, or these kinds of analyses, to
14 the existing nuclear radioactive waste sites to see
15 whether or not they have actually complied with the 25
16 millirems dose after all of these years, or any of the
17 other stability criteria, have the older sites been
18 analyzed? I realize they weren't licensed under 10 CFR
19 61, except for Batey's, but have these analyses been
20 done because it seems like it is very farfetched to -- it
21 seems like what is going on here, which I oppose and
22 my organization opposes, is that you have made an
23 elaborate calculation system analyses that is done by
24 the same people who will receive the waste and the
25 profit from it, and all they have to do is carry out

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1 some equations. Then you guys see if the equations
2 look right, and then they can pretty much put any waste
3 into these disposal sites that they want, and there will
4 never be any consequences that they have to bear.

5 So this rule appears to be, and we oppose
6 this, an expansive opening of what can go into the
7 disposal sites, that -- basically, it is fine if you
8 want to deal with orphan waste, but now it appears that
9 any amount of orphan waste, any kind of waste greater
10 than Class C transuranium, possibly even deregulated,
11 high-level liquid waste that is solidified or whatever,
12 could potentially be declared waste processing, and
13 enabling the whole -- everything but the high-level
14 waste and in the US to go into -- and the world,
15 actually, to go into these sites. Have you applied it
16 to any of the performance -- applied from the existing
17 sites?

18 MR. ESH: Right, and we have not applied
19 the proposed requirements to the Legacy sites, so, for
20 instance, in Illinois or Kentucky or New York, because
21 as we talked about in the last meeting, those were done
22 prior to Part 61. You said Part 61 requirements don't
23 apply to them. As you indicated, the Batey facility
24 did apply the Part 61 requirement. It is closed. It,
25 to this day, still undergoes monitoring, and I don't

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1 believe has showed anything close to the performance
2 objectives.

3 The performance objectives today still
4 apply to all the existing facilities. So, in the
5 proposed rule, the performance objectives are being
6 changed, but, for instance, for 61.41, you are just
7 moving from the ICRP two dose methodology to a more
8 modern methodology.

9 MS. DALEGO: You are moving to what?

10 MR. ESH: You are moving from the ICRP
11 older dose methodology, ICRP two, to ICRP 2630 type of
12 dose methodology, total effective dose equivalent. So
13 that -- you know, to say that --

14 MS. DALEGO: So they --

15 MR. ESH: Just a second. To say that we
16 are proposing something that is opening the door to all
17 sorts of things to happen, there is an existing
18 regulation for which all of these materials can be
19 disposed of under. We are trying to propose
20 requirements appropriate for potential new materials
21 because the existing regulation does not require, as
22 I will talk about in maybe a half an hour, 45 minutes,
23 an intruder assessment.

24 So that is the key part that the waste
25 streams that are significantly different than what was

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1 analyzed in the early 1980s, you had -- somebody has
2 to do a new intruder assessment, whether it's the
3 regulator or the licensee. And in these proposed
4 regulations, it is the licensee that is going to perform
5 that analyses. So right now, all the waste that you talk
6 about and all that could happen under the existing
7 regulation if we did nothing, and that is the point that
8 you need to understand.

9 MR. CAMERON: Okay. We really need to
10 move on, but apropos --

11 MS. DALEGO: I'll just point out,
12 though --

13 MR. CAMERON: Diane, Diane, we really need
14 to move on, okay?

15 MS. DALEGO: Okay.

16 MR. CAMERON: And apropos of Diane's first
17 point is something that Steve mentioned, is that if the
18 staff is going up to the commission with a final draft,
19 final rule, it is very important when you comment on
20 the proposed rule to provide a rationale for why you
21 think something should be changed because that often
22 can support what the staff is saying, and that can be
23 influential and persuasive with the commission.

24 So, thank you, Diane, for that comment, and
25 let's go to the second topic. And I think some of you

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1 who may have questions about this, there will be some
2 things that resonate in these later discussions that
3 we can get to your questions. So, David --

4 MR. ESH: Right, the first four or five
5 topics that I go through are all interrelated, so don't
6 feel like you are being missed if you didn't get your
7 hand picked on the first topic.

8 But the first analyses that I am going to
9 talk about is the performance assessment. So if, if
10 you remember that kind of diagram with the things going
11 different directions early on in the presentation, one
12 of the analyses that are important for that is the
13 performance assessment. That is how you assess
14 compliance with 61.41. So a performance assessment,
15 for those of who might not be familiar, it is basically
16 a technical analyses where you take a real system, you
17 are going to develop a mathematical model, or some sort
18 of abstraction of that real system, in order to try to
19 estimate future performance. So down here in the
20 corner is a plot of various dose curves for different
21 radionuclides from the disposal facilities, and the
22 timeframe goes from zero to 10,000 years.

23 Inherent in this is if you are doing
24 modeling to try to do a projection is you need adequate
25 support for this calculation, and that support I am

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1 going to talk about in the next slide, it can take a
2 lot of different forms, but that is a key thing to
3 understand. This isn't just a calculation. It is a
4 calculation with technical support for it.

5 So as Chip indicated, when you give your
6 comments to us on the regulation, it is very helpful
7 if you give a basis for it because we may share your
8 opinion on something, but if we don't have a basis, we
9 can't just necessarily generate a basis. If you give
10 us a basis, that might give us the ammunition to change
11 something in the regulation. Next slide, please.

12 So the model support, what you are looking
13 at is how to bring in information from past, present,
14 and future conditions. So present information might
15 be things like lab experiments or field experiments,
16 so maybe you do a tracer study at the site to look at
17 how radionuclides are going to move through the
18 environment.

19 Past information is maybe how you look at
20 historical data from the site, in terms of weather,
21 erosion, other types of processes, and then especially
22 analogs, because if you are going to project
23 performance over very long times, it is -- the utility
24 of maybe the present information, in some cases, can
25 be limited.

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1 The analogs can give you information that
2 you need to look at cautiously over how things may have
3 behaved over very long periods of time. So analogs
4 might be things like isotopic studies about how various
5 isotopes have moved or petitioned in the environment.

6 And then also as part of this process,
7 there's future information because the facilities will
8 be operating for multiple decades, and then there is
9 an institutional control period of up to 100 years where
10 you can collect monitoring data. All of that
11 information can be used to compare to your technical
12 analyses and see whether the technical analyses is
13 valid. So there is a licensing decision that's made
14 upfront, that the licensee is at present at the site,
15 and the regulator still provides oversight of the
16 operations of the site and the monitoring data during
17 operations of the facility. And then when you move to
18 a closure period, there is a final analysis that is
19 being done as proposed in this regulation to verify that
20 your initial analyses is what you thought it -- things
21 are still as you thought they were when you did your
22 initial analyses. Next slide, please.

23 So the performance assessment, in our
24 view, it is not a new topic, it's a renaming of technical
25 analyses in the existing regulation. The proposed

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1 modifications modernize the technical analyses because
2 the existing Part 61 was developed in the early 1980s,
3 and so you have roughly 35 years since it came into
4 being. The science has changed quite a bit on some of
5 these things. The computers, we have a lot -- we have
6 available today, and many of you have in your pockets,
7 are a lot different than what was available in the early
8 1980s. We should make use of that information when we
9 are making these decisions.

10 There are new requirements provided in
11 61.13. These have to do with three main areas. So the
12 scope of the analyses; the language that we use,
13 features, events, and processes, what are all the
14 things that are going to be going on at your site today,
15 and in the future, that could impact how this facility
16 performs. And then uncertainly, uncertainty on how
17 well you know information, uncertainty on how
18 information might change in the future. That's an
19 important part in the performance assessment process,
20 and then also, as I've indicated, model support.

21 Now what I would say is that these elements
22 that are explicit requirements in the new regulation
23 are part of any modern performance assessment and are
24 usually part of any historical performance assessment.
25 We are moving from implicitly those things applying in

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1 a performance assessment, to explicitly in applying a
2 performance assessment. And we don't think this is a
3 large burden because any modern performance assessment
4 is doing these three bullets that are indicated here.

5 Then as I said previously, we have a
6 requirement to update the performance assessment at
7 closure, and then something else that we did was we
8 modified the site characteristics consistent with the
9 disposal of long-lived waste. So the siting
10 characteristics are found in 61.50, and that's when you
11 are deciding to put a site somewhere, what do you look
12 at. So things like, is the site going to flood? Is
13 the water table going to fluctuate? How much
14 seismicity might you have? What's the erosion at that
15 location? All of those things go into selecting a site
16 to deciding to put waste there. Do people live there?

17 In general, our sites are all in very low
18 population locations. They also -- three of them are
19 in pretty arid locations. But are there natural
20 resources that might be exploited? Those are all
21 considerations that go into siting characteristics,
22 but when you're disposing of very long-lived waste
23 then, how do you demonstrate that you are not in
24 100-year flood plain for 10,000 years, for instance?

25 What we have done is we separated out

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1 siting characteristics that are exclusionary and
2 identified a 500-year period where if you have those,
3 you shouldn't be putting a site there. Because the
4 early Legacy sites that I talked about earlier, such
5 as Maxey Flats and New York, they had difficulty with
6 the stability of their facilities, mainly related to
7 water. So things with water did not work as people
8 thought when they initially sited and then started
9 operating those facilities.

10 That is part of why the regulations 10 CFR
11 61 came into being is NRC looked at that and said, "jeez,
12 people aren't getting this right with the stability of
13 these facilities and we are having a lot of problems
14 that we are needing to go back and deal with, so let's
15 make requirements to try and avoid those problems," and
16 I think it has been pretty successful so far. We
17 haven't had any of those existing facilities that are
18 having significant water problems at that time -- you
19 know, Barnwell had some challenges, but they made
20 modifications to try to improve their water management
21 at that site. So, anyway, that's the gist of
22 performance assessment. Next slide, please.

23 This shows the various requirements
24 related to performance assessment around the outside
25 of the diagram on slide 18 here. The performance

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1 assessment is in the center. It says data collection
2 and develop models, develop numerical and computer
3 models, estimate the effects as needed until you are
4 confident in the results. So all these requirements
5 that support or are related to performance assessment,
6 three of them I covered are in -- you know, three of
7 them I covered here in 61.13. This one here, the
8 results of the performance assessment can be used in
9 your defense-in-death analyses, I will talk about the
10 defense-in-depth analyses later. And I'm also going
11 to talk about waste acceptance criteria, and I've
12 already talked about 61.50 and 61.28. Next slide,
13 please.

14 So this is the verbal description of what
15 a performance assessment is. You are going to identify
16 the features, events and processes that might affect
17 the system. Then you are going to look at how the
18 effects of these features, events and processes may
19 impact the performance of the disposal system, and then
20 estimate the annual doses caused to those significant
21 features, events, and processes. So when you start the
22 performance assessment process out, you may have a very
23 big universe of things that you could consider to see
24 what applies at a particular site. As you go through
25 the analysis process, you pair down those various

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1 processes, features, events, and processes, and
2 determine on a safe, specific basis what might apply
3 to your site. Next slide, please.

4 This is an example from the guidance
5 document. We have a variety of what we call hazard
6 maps. These were developed using GIS analysis,
7 Geographic Information System, and the intent of these
8 diagrams, which are in back of the our guidance
9 document, they are in appendix B of the guidance
10 document, are to be a review tool for either a licensee
11 or agreement state regulator, or a member of the public,
12 when you are looking at a particular facility, to say,
13 what are the hazards that might apply to this facility,
14 and where should I provide more review effort, or where
15 should I focus my attention?

16 They are not done at a resolution where,
17 say, you could plot the Clive site down here, and if
18 it is in a black area, you say it should be excluded
19 because it is in an area of flooding. You need to zoom
20 in on the area then and look at the specific detail.
21 But I think it is a good review tool to kind of focus
22 your evaluation and analysis. That is a sample of the
23 information that is in the guidance document. Next
24 slide, please.

25 So what we are seeking feedback on with

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1 respect to the performance assessment is, No. 1, the
2 suitability of using technical analysis to evaluate the
3 disposal of long-lived waste because there may be
4 alternative approaches rather than this analysis-based
5 approach. The analysis-based approach is what has
6 been used in the United States for low-level waste
7 disposal and other types of problems, and it is used
8 liberally internationally, but it is not necessarily
9 the only approach. You know, you can come up with
10 restrictions on types of waste disposal that are
11 irrespective of a technical analyses. So you say, as
12 a matter of policy, I don't want to put this type of
13 material in this location, for instance. It doesn't
14 matter what the technical analyses might say.

15 Then, of course, we have these new
16 technical analyses requirements in 61.13. The
17 question would be whether we need those. Did we miss
18 any? You know, if you look at 61.13, is there something
19 not there that you think should be there? Those are
20 the types of comments that we would like to receive,
21 and then the last two modifications that I commented
22 on.

23 MR. CAMERON: All right. Thanks, David.
24 Questions? Let's go back here, and then we will go over
25 to the side. Please introduce yourself.

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1 MS. NOVAT: I am Mary Ellen Novat (sic.)
2 David, I want to go all the way back to the definition
3 of long-lived waste and ask you which of those
4 categories -- into which of those categories do you put
5 depleted uranium?

6 MR. ESH: Right. Depleted uranium would
7 be long-lived waste because it has both long-lived
8 parent radionuclides, the U-235, U-234 and U-238, and
9 then it also has long-lived progeny that results in the
10 decay chain. So depleted uranium would be long-lived
11 waste according to that definition.

12 MS. NOVAT: In multiple categories?

13 MR. ESH: Yes, in multiple, but whether
14 it's multiple or one doesn't matter. If it just
15 triggers one of them, then it is long-lived waste.
16 Right.

17 MS. NOVAT: Okay. And then did I
18 understand your answer to Steve over here to be that
19 you are assessing -- this performance assessment is
20 only for radioactive characteristics and that the
21 byproducts that are -- say heavy metals and other
22 things, are not within the performance assessment
23 security concerns?

24 MR. ESH: Right. Yes, the performance
25 assessment is looking at the radiological impacts. In

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1 the US, you do end up with a type of waste that can be
2 called mixed waste that has concentrations of heavy
3 metals or chemicals that may require -- may cause it
4 to be designated as a chemical waste, then the
5 requirement for chemical waste disposal apply, as well
6 as the radiological component. At NRC, we're a
7 radiological agency and so we deal with the
8 radiological impacts.

9 MS. NOVAT: Okay. So there is another
10 agency, another regulatory agency, which would
11 necessarily be involved in depleted uranium as it
12 decays?

13 MR. ESH: Right, I don't think depleted
14 uranium is considered to be a mixed waste, but I am not
15 a -- you know, I am not a chemical waste, mixed waste
16 expert. So somebody else can have a --

17 MS. NOVAT: Okay. Well, it was my
18 understanding that as it decayed, and as it came in
19 contact with water especially, that there were
20 chemicals that would occur in that waste that would be
21 incredibly hazardous in a shorter time period.

22 MR. ESH: Right, the uranium itself,
23 whenever it reacts with water, it will change the form
24 of uranium, the form that the uranium is in, but it is
25 still uranium. But when it radiologically decays into

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1 some of its progenies, then it changes the particular
2 isotope that it is. So from uranium to thorium to lead,
3 for instance, as it goes through the decay chain.

4 MR. CAMERON: Thank you. Let's go over
5 here.

6 MR. HORROCKS: Thanks, Chip. Earl
7 Horrocks, State of Washington, I missed you guys last
8 night. I have a chance to catch up with you now. New
9 technical analysis, if we've already got an analysis,
10 a PA in place, it encompasses your FTPs, are we required
11 to do an actual new PA?

12 MR. ESH: I think you will need to look at
13 the new requirement and evaluate it against the
14 analyses that you have done and see whether you believe
15 that the previous analyses meets the new requirements,
16 but as I -- you know, I am not an expert in all the
17 analyses because they are done in agreement states
18 program. I have looked at most of them. And as I
19 understand your analyses and the way it has been
20 performed and the timeframes that were evaluated, I
21 think this regulation would have little impact on the
22 Washington state analyses.

23 MR. HORROCKS: One other question I have
24 with you is, we relied heavily -- about, you know, 15
25 years ago, we did, more or less, a deterministic PA.

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1 In consultation with NRC and Chris' group, you guys,
2 I think, are leaning more towards probable realistic
3 PAs; is that right?

4 MR. ESH: Right. For members of the
5 audience that might not understand the term,
6 deterministic analysis is you pick one value for each
7 of the inputs or parameters that go into the analysis,
8 and you do calculation, and you basically get one curve,
9 or one result. The problemistic analyses is, you
10 specify the uncertainty of each of the parameters that
11 go into the analysis and then you sample values from
12 the distributions that represent the uncertainty for
13 all the parameter, and you get what we call a horse tail
14 claw, because many times it looks like a horse tail.
15 You get a whole series of curves that come out from the
16 analyses, and those each representative one potential
17 evolution of the system.

18 So we don't say that you have to do a
19 particular type of analyses at your site. We provide
20 guidance, if you are doing either type of analyses, the
21 things that you might want to consider. As you move
22 to more technical, challenging problems, and higher
23 concentrations of long-lived waste, then you probably
24 want to consider the problemistic analyses because you
25 have more uncertainty that you have to deal with.

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1 But if you can do a conservative
2 deterministic analysis and make a licensing decision
3 on it, that by itself is a very appropriate way to go
4 about the licensing process. It is easier for people
5 to understand, it is easier to justify, and it is easy
6 to interpret.

7 MR. HORROCKS: Thank you.

8 MR. CAMERON: Okay. Matt?

9 MR. FERCHEN: Yes, I wasn't sure if this
10 comment fits better here or in the WAC part, but in the
11 interest of being here now, I will quickly make it. We
12 have raised this issue in earlier iterations of the
13 rule, and I wanted to quickly reiterate it now, which
14 is that, you know, relying upon technical analysis, I
15 think it sounds good, but there is a practical result
16 of it.

17 And I think that the practical result of
18 it is that it makes decisions much less penetrable by
19 an ordinary person, or by a group of citizen, or by
20 elected officials, by the vast majority of people;
21 that, you know, when you look at the performance
22 assessment that we are wrestling with now in Utah, it
23 is an extraordinary complex piece of work.

24 And I think it is safe to say that the
25 public interest group I work for has probably read more

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1 of it and engaged with more of it than virtually anyone,
2 outside of the folks that were directly involved,
3 either created it or paid to evaluate it. And the God's
4 honest truth is, I don't think we've actually read ten
5 percent of, if I were to guess. I know there were whole
6 appendixes, whole sheets of data, whole tables, that
7 we just can't get to. We don't have the expertise and
8 we simply don't have the time.

9 So, you know, one of the real advantages
10 of the tables and the classification system was that
11 there was a shorthand that an ordinary person, an
12 elected official, could sort of wrap their head around.
13 You could sort of say "Am I comfortable with waste that
14 is a problem for 100 years, for 500 years, for 10,000
15 years," whatever that number might be. And then that
16 becomes like an interesting debate. You can say "How
17 confident are we that things will change? How
18 confident are we that civilization will go?"

19 But what we've now moved to is conversation
20 about, like, the proper coefficient for burrowing ants.
21 I mean, that is literally the conversation. Right? I
22 mean, it's about burrowing ants, and it is about, you
23 know, rising lake levels and sand dune formations, and
24 it is extraordinary. And I dare say that there are like
25 80 people on earth that really understand it, you know,

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1 and I am one of them. And I am a humanities guy. It
2 is embarrassing in some ways.

3 And so I sort of think that the science of
4 this makes sense, the logic of it makes sense, but the
5 practical implication of moving in this direction puts
6 the decisions behind this incredibly complex wall that
7 is really hard to peer around. And I will just make
8 one more point about it. It also puts an enormous
9 amount of power in the hands of consultants, and, you
10 know, I like those consultants.

11 We really like SCNA, the one that has done
12 the work here in Utah. I don't have problem with the
13 folks in Neptune. I haven't met them, but I am sure
14 they are solid professionals. But there aren't many
15 of them. There's a small number of such firms in the
16 world. It is in their best interest to make their
17 clients happy so that they have repeat business, and
18 they come back to the work. And if you have this tiny
19 number of firms paid to, you know, create models, it
20 is in their interest to create the model that reaches
21 certain outcomes. It's just a fact. We all know that.
22 We know the way consultancy works.

23 So that has been our major concern with the
24 shift to PAs and the shift to WAC approach, is that it
25 sounds like a good idea but the practical result, I

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1 think, is going to lead over time to much less public
2 participation, much less weighing in from elected
3 officials, and much harder for states and policymakers
4 and regulators to be really involved in it.

5 MR. ESH: That is a good comment. We have
6 heard that comment before. I think we heard it from
7 your predecessor. He said it in a way of you're kind
8 of putting the fox in charge of the hen house, I think
9 is the way he put it. And, you know, my answer to that
10 is you still have a farmer. Your farmer is right there
11 in the checkered shirt, Rusty. Maybe he didn't know
12 he was a farmer, but there is somebody there still
13 chasing the fox away from the hen house, if that is what
14 you think you are running into.

15 So this process does require a couple of
16 things, though. It requires a strong regulator, you
17 know, a strong competent regulator that can review that
18 material that might be generated. And it requires
19 transparency of information with the stakeholders, so
20 that if you do have the interest in evaluating it, and
21 you do want to challenge it, you can get information,
22 and you can evaluate it.

23 But it is a -- you are correct in everything
24 that you said. As computers have evolved, a lot of
25 other things have become more complicated, and the

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1 analysis associated with waste disposal has done that,
2 too. It's a much more complicated analyses with a lot
3 of detailed things that go on in those analyses.

4 MR. CAMERON: Okay, thank you. Jeremy,
5 anybody on the phone that wants to talk about
6 performance assessment?

7 PHONE OPERATOR JEREMY: Once again, if you
8 would like to make a comment or ask a question, please
9 press star one. We have no parties in the queue.

10 MR. CAMERON: Okay. Can we move on?
11 Intruder assessment, okay.

12 MR. ESH: The intruder assessment is an
13 analyses that applies to 61.42, and this is new analyses
14 that is being required in this regulation. So the
15 performance assessment is really a renaming of the
16 technical analyses that exists today in the regulation.
17 The intruder assessment is something that is not
18 required in the current regulation.

19 This is a diagram just to give you a picture
20 of what can be looked at in an intruder assessment.
21 Obviously, engineers make poor graphical artists, but
22 this is a picture of a disposal site where you may have
23 some deposited waste, and the types of scenarios that
24 somebody might evaluate as -- the waste -- the area
25 where the waste is disposed of in Part 61 is a controlled

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1 area for up to 100 years, institutional controls.
2 Those are active controls to make sure that somebody
3 doesn't use that area.

4 After the active institutional control
5 period, there is a layer of passive controls that apply
6 at a disposal facility, and that involved something
7 like state and federal ownership of the land and deed
8 restrictions, for instance, to try to ensure that
9 nobody uses that area in a way that you don't want to
10 in the future.

11 But when the regulations were developed in
12 early 1980s, there was a random, common flood canal,
13 where, for instance, they put chemical waste in an area,
14 and then through a series of human errors, basically
15 built a school there which led to the release of that
16 material into the neighboring houses. And so that was
17 in the minds of the nuclear regulators whenever Part
18 61 was being developed. And so 61.42 is inadvertent
19 intruder performance objectives to look at, well, what
20 if somebody uses this disposal facility in a way that
21 we didn't intend when it was sited. Next slide,
22 please.

23 And I didn't have the burrowing ants there
24 on the figure for you, Matt, but you can put those on
25 there. Of course they would not be to scale. They

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1 would probably be six feet around.

2 The inadvertent intruder assessment is a
3 new analyses. It's proposed modifications to require
4 what we call stylized analysis instead of relying on
5 waste classification tables, that's something we just
6 talked about. The waste classification tables in the
7 existing Part 61 were based upon this type of intruder
8 analyses. It's just that the regulator did this
9 analyses, not the licensee.

10 The problem with the regulator doing the
11 analyses is that in order to have a table of single
12 values, you have to make assumptions about
13 environmental conditions and a variety of other
14 parameters. So in the US, we have such a diversity of
15 environments, sites, engineering, disposal depths,
16 etc., applying a one analysis fits all to that type of
17 problem doesn't make sense from an engineering
18 perspective. It might make good sense from public
19 policy perspective.

20 So that is the kind of thing you have to
21 weigh, the transparency and the kind of check and
22 balance that you have in the system for, you know,
23 consultants doing wrong, or that sort of thing. But
24 that is kind of what we debated and discussed whenever
25 we went through modifying the requirement.

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1 And so the inadvertent intruder assessment
2 is new. There are requirements in 61.13 associated
3 with the scope, the use of intruder barriers, and then
4 consideration of uncertainty and variability; very
5 similar to requirements that are provided for the
6 performance assessment. And then the performance
7 objective in 61.42 has been modified to reflect this,
8 and we also have a requirement similar to the
9 performance assessment that you must update your
10 intruder assessment enclosure. Next slide, please.

11 So this flowchart is a little hard to read.
12 It's from the guidance document. Hopefully you get a
13 chance to look at the guidance document. It is just
14 basically a step-by-step process that you go through
15 and complete the intruder assessment. Some people are
16 kind of inside-the-box thinkers and some are
17 outside-the-box thinkers. We have both types of
18 information in that guidance document that hopefully
19 appeals to either.

20 The bottom line is we are requiring that
21 the intruder dose assessment is a site-specific
22 intruder dose assessment. One of the key points is
23 that it's supposed to be, based on the language from
24 the commission, that are realistic and consistent with
25 expected activities in and around the disposal site at

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1 the time of closure, and we are applying the dose limit
2 of 500 millirems of the compliance period. This is
3 total effective dose equivalent dose limit. The dose
4 limits that was used by the NRC to develop the waste
5 classification tables was also 500 millirems
6 methodology. It's not the new total effective dose
7 equivalent methodology. Next slide, please.

8 So what we are seeking your feedback on is
9 we have revised new definitions of the intruder
10 assessment that are found in 61.2. We have revised
11 concepts that are provided in 61.7. The concept
12 section in this regulation that exists in the current
13 regulation and in our proposed regulation is a little
14 bit unique. You don't necessarily find that in
15 regulations.

16 But it kind of describes how everything is
17 supposed to be working, and, you know, how it fits
18 together, and what the components are. So that does
19 not provide requirements, but it kind of provides the
20 narrative that apply to the requirements later on. And
21 as I indicated, there are new requirements for 61.13,
22 61.28, and 61.42.

23 MR. CAMERON: Okay, thanks, David.
24 Anybody on the intruder assessment aspect? Okay, we
25 will go back to Steve.

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1 And, Steve, if you can just state your name
2 again for the record, please.

3 MR. TAYLOR: Steve Taylor. I am
4 interested just how blast hardened this facility is
5 going to be because it seems to me that ignoring the
6 short-term radioactive potential for this thing, the
7 chemical potential sounds serious to me, and I wondered
8 if a terrorist would not find this a nice target to fly
9 over with a small airplane and drop a bomb on it. It
10 is upwind from Salt Lake.

11 Has that -- you know, your consider -- your
12 analysis has looked at the chemical toxicity as being
13 essentially equivalent to the nuclear toxicity, which
14 at this time is very low, but it seems to me that those
15 are two entirely different considerations. Thank you.

16 MR. ESH: Right, that is a good comment.
17 The one part of an answer I can give to you is that
18 analysis for intruders is meant to look at the
19 inadvertent intruder, somebody that uses the site not
20 knowing it is a disposal site. The commission has said
21 that the requirements are not to apply to an advertent
22 intruder, so somebody that wants to do theft or sabotage
23 or those sorts of things, that doesn't apply to them.

24 MR. ESH: So the rule does not even
25 consider that danger?

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1 MR. ESH: Right.

2 MR. CAMERON: We have another comment
3 here. Go ahead, Chris.

4 MR. MCKENNEY: The rule, when we are
5 talking about the long-term safety evaluations on this
6 type of thing, as part of any license application, there
7 are a number of operational scenarios that we have to
8 evaluate, including large fires, fire potential, what
9 happens if a plane crashes into a disposal cell. I did
10 one of those way back in the day.

11 But, yes, we have all the types of
12 transportation accidents they have to evaluate.
13 There's all these other ones that we are not talking
14 about today of operational safety, safety during
15 operations and transportation to the site, that those
16 type of analyses are already discussed as just normal
17 operations and not part of this performance assessment
18 or intruder assessment. So those types of scenarios
19 are discussed during licensing.

20 MR. CAMERON: Thank you. Matt?

21 MR. FERCHEN: I apologize if I am talking
22 too much, but I guess we are the ones that have the
23 luxury of -- the time to read all of this stuff and
24 digest it.

25 MR. CAMERON: The pain.

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1 MR. FERCHEN: The pain, yes. Just
2 quickly about inadvertent intruder, just to point out,
3 this is another area in which the commissioners
4 overruled the staff strongly. And so back in May of
5 2011, the staff proposed the assessment would have to
6 model that an intruder occupies a disposal site after
7 closure and engages in activities as someone occupying
8 the site.

9 Energy Solutions, a month later, said they
10 only thought that reasonably foreseeable scenarios
11 should be modeled, and then the NRC commissioners
12 overruled the staff in February of 2014, and said they
13 should only look at scenarios that are realistic and
14 consistent with expected activities in and around the
15 disposal site at the time of site closure.

16 So, you know, I am packing a bunch of
17 language there, that went from you better make sure it
18 is safe to live there, to all you have to look at is
19 what is happening at the time the place is closed. And
20 I think for us, when we look at long-lived waste streams
21 for depleted uranium, climate change, a lot of things
22 coming down the road that are hard to predict, it seems
23 unnecessarily limited to only look at things that are
24 happening now or 100 years from now, rather than the
25 full range of activity. The staff agreed and

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1 unfortunately the commissioners didn't.

2 MR. ESH: That is a good comment. The one
3 thing I can point you to is chapter 4 in the guidance
4 document on the intruder analyses, where we go through,
5 in great detail, approaches that we would find
6 acceptable to develop intruder scenarios because you
7 hit the nail on the head; for the intruder calculation,
8 one of the key things that can change the dose numbers
9 is what the people are doing.

10 You know, if they aren't there much, and
11 they aren't exposing much of the material, then they
12 are going to get a low dose. If they are there and doing
13 a lot of thing that disturb the material, then they
14 potentially get a much higher dose. And we have -- in
15 the guidance document, what we basically say is, "Look,
16 you should be very cautious about how you go about this.
17 That door swings both ways. You can come up with
18 scenarios that are less conservative if you want to do
19 it on a site-specific basis, but then you might end up
20 with scenarios that are a lot more restrictive, too,"
21 because somebody from the community can come in and say,
22 "Look, I live here, and this is what I do, and it is
23 a lot different than what may have been analyzed in your
24 scenario." How can you override that individual, for
25 instance, when they actually live there and they are

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1 actually doing something that you didn't analyze?

2 So we say, "Look, stick with the default
3 scenario. That is one way to do it. Or if you are
4 going to use a site-specific analyses, then also
5 analyze the previous NRC default scenarios and provide
6 a comparison between those two results. So then your
7 stakeholders can see how important those assumptions
8 are about what the receptors are doing and, you know,
9 their activities. Because then they might have a lot
10 of questions about that part of your analyses, which,
11 you know, would be fair game."

12 So we think that is a good -- like, you
13 know, something for the stakeholders that you should
14 have transparency about that important part of the
15 analyses.

16 MR. CAMERON: Jeremy, does anybody on the
17 phone want to make a comment on inadvertent intruder?

18 PHONE OPERATOR JEREMY: Once again, if you
19 would like to make a comment, please press star one.
20 And we do have our first comment coming in. One moment
21 for the name, please. Sarah Fields, your line is open.

22 MS. FIELDS: I have a hard time getting my
23 brain around why these waste, which will be long-lived,
24 are not going to be treated similarly to uranium mill
25 tailings. Here in Utah, we will have at least six

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1 facilities that will be under perpetual care by the
2 Department of Energy, and even for currently operating
3 uranium, the dose standard is 100 millirems, not 500
4 millirems to the nearest receptor.

5 So my understanding of how you treat
6 long-lived radioactive contaminants is that you put
7 them in a situation where they are both aligned in
8 common and that they have an engineered cover and that
9 they are under perpetual care. Even under these
10 circumstances, the NRC, in their regulatory program,
11 assumes that such a facility would not need long-term
12 maintenance, but the Department of Energy is now
13 finding out that some of these facilities that was
14 designed to not require long-term care and maintenance
15 now do require long-term care and maintenance.

16 Going back and looking at NRC and PA
17 regulations having to do with the handling and -- well,
18 the creation and disposal of nuclear waste were well
19 aware that the early assumptions were very incorrect,
20 and in many instances, they still have not updated these
21 assumptions. So my general comment would be that these
22 wastes have to be treated similarly to uranium mill
23 tailings, with the permanent covers, and be under
24 perpetual care.

25 MR. CAMERON: Thank you, thank you very

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1 much.

2 MR. PERSINKO: Let me add something to
3 that.

4 MR. CAMERON: This is Drew Persinko.

5 MR. PERSINKO: Sarah's comment -- first of
6 all, thank you for the comment, Sarah. I just want to
7 point out, also, that, you know, the uranium mill
8 tailings sites that you mentioned, many of them, the
9 title one sites, anyway, go way back. They are very
10 old. They go back to the Cold War era, the '50s, and
11 a lot of things were done very different back then. The
12 tailings were kind of not -- they are not in line many
13 times.

14 So there is a different -- there's a lot
15 of differences, I think, between a mill tailings site
16 and the kind of sites we are talking here today. And,
17 also, I just want to point out also that the regulation
18 of the tailings, which the NRC does, was under the
19 statute of the uranium mill tailings radiation patrol
20 act. So congress specifically gave us a statute that
21 said, "Here is how you will deal with the title one
22 uranium mill tailings site," and in that statute, it
23 was specifically stated that Department of Energy will
24 be the long-term care of this facility.

25 So I think we just have to be careful here

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1 that we don't -- you know, there are very distinct
2 differences between mill tailings and what we are
3 dealing with here.

4 MR. CAMERON: Okay, thanks, Drew.

5 MR. ESH: That was a good comment, and I
6 understand it. And it is pretty accurate to say that
7 we are -- between the two, we are substituting kind of
8 a perpetual care component to a -- with a long-term
9 analysis component. So, you know, that is fair, but
10 what I would say is that in the low-level waste disposal
11 systems, you do have to demonstrate compliance with
12 61.44, which is a stability objective, and the
13 stability objective, one way you can do that is with
14 an engineered cover. And if you think the amp part of
15 the problem is difficult, try moving to the
16 geopathology part of the problem.

17 But the engineered cover is one way that
18 has been used in uranium mill tailings to try to achieve
19 the performance goals for uranium mill tailings
20 facilities. We extended that to the low-level waste
21 problems, and in the guidance document, that there is
22 an appendix that details the design-based approach and
23 even extends that further. So in uranium mill
24 tailings, you are looking at 200 years to up to 1,000
25 years to try to design the covers for uranium mill

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1 tailings. For the low-level waste disposal facility,
2 you might be looking at -- up to 10,000 years to try
3 to provide erosion protection for the system.

4 Well, when you move to that timeframe, then
5 you have to start looking at things like rock
6 durability. What type of rock am I using? There is
7 a rock scoring process to try to determine what rocks
8 are durable with your particular environment. There
9 is an analysis process to design it based on the
10 probable maximum flood that you can expect at that
11 facility. The probable maximum flood is the
12 statistically largest flood that you can ever imagine
13 at that location, and the magnitudes of those floods
14 are enormous when you look at volume of water or amount
15 of rainfall in a 24-hour period that you're talking
16 about.

17 So that is part of this process. That part
18 is in the guidance document, but the rest of your
19 comments, you know, I acknowledge, and it was a good
20 comment.

21 MR. CAMERON: Okay. Jeremy, anybody
22 else?

23 PHONE OPERATOR JEREMY: There are
24 currently no questions in queue.

25 MR. CAMERON: Okay. David, I am going to

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1 suggest, because I want to make sure that everybody here
2 gets your presentation on each topic, could you go
3 through two topics, and then we will go on for questions
4 on either of the topics?

5 MR. ESH: Sure.

6 MR. CAMERON: That will cut down on the
7 transaction time. Thank you.

8 MR. ESH: Okay. Protective assurance
9 analyses is the second tier of the analysis timeframe.
10 The main thing you have to know about this is it's
11 proposed in the regulation as an optimization type
12 process, rather than comparison to a dose limit. That
13 is a little bit different.

14 As I indicated earlier, you will see that
15 in remediation-type decisions. It is not as common to
16 see it in a waste disposal type decision. That is the
17 direction that we received from the commission when we
18 went from 2-tier approach to the 3-tier approach. The
19 goal, though, is to minimize the doses during that
20 second time period. So that's from 1,000 years to
21 10,000 years.

22 What the staff recommends is, the simplest
23 approach is to simply to extend your performance
24 assessment and intruder assessment analyses. Most of
25 the cost of developing those, there isn't a large cost

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1 between the different timeframes from zero to 1,000 and
2 1,000 to 10,000. It is setting up the analyses to begin
3 with and developing all the inputs that go into it. So
4 all the things that related to what ants are doing and
5 petitioning of chemicals between the environmental
6 media, how water is flowing through the system, what
7 is happening with the atmospheric condition, the
8 receptor pathways, and who the receptors are, all that
9 burden comes upfront, and you have to do it. It's 1,000
10 year period, so why not use that information as part
11 of the decision that you are trying to make, or the
12 criteria that you are trying to evaluate here in the
13 second tier of the analysis.

14 And in the guidance, what we also decided
15 to do was kind of scale this effort by the risk that
16 you are estimating. So if you are at a high-risk
17 situation, then you should be in a high-effort
18 situation, in terms of the type of analyses you need
19 to provide and how detailed that analyses needs to be.
20 And if you are in a low-risk situation, then you have
21 a low effort that you need to provide for that analyses.
22 Next slide, please.

23 So this is the figure from that guidance
24 document where basically the effort increases as you
25 go up here to these different levels. And if we say

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1 a few millirems, then your effort is fairly minimal that
2 you need to do for this 1,000 year to 10,000-year
3 period. Then as you move up the scale, there's
4 progressively more effort, and we give examples of the
5 type of effort that you might need to do as you move
6 up the dose scale.

7 So, we think this is fairly reasonable, but
8 it is kind of a new approach based on the direction we
9 got from the commission, so it is an area where we hope
10 to get some comments on. Look at both the requirements
11 and the regulation and then especially the guidance
12 document that we developed for it. Next slide, please.

13 So the protective assurance analyses
14 period, the main things are the optimization with a
15 minimization target, and we are using, or recommending
16 using the guidance document risk-based discounting.
17 And, also, the easiest approach that we recommended is
18 just -- or the most straightforward approach is to
19 extend the performance assessment and intruder
20 assessment to that timeframe. So we will do the next
21 topic now, which is related.

22 Performance period analyses, this is
23 applicable to the times after 10,000 years. It is only
24 to apply if you have sufficient waste, and we give a
25 direction -- or requirements and the direction in the

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1 guidance about how you determine if you have sufficient
2 waste. So there's a table in the regulations, Table
3 A, which I will show here coming up, which provides
4 concentrations of waste on a disposal site average
5 basis they use to determine "Do I need to do that third
6 tier of the analysis?"

7 Because we didn't want it to be just a few,
8 you know, atoms or queries of a particular type of
9 waste, that that is going to require somebody to do this
10 analysis. That is not very -- you know, NRC tries to
11 be risk informed performance based, and that is not very
12 risk informed performance based. So we tried to make
13 a trigger point where we think this would definitely
14 apply to large quantities of depleted uranium. You
15 would be in this -- above those values provided in Table
16 A, and, therefore, you would be doing the performance
17 period analyses.

18 Other types of long-lived waste would also
19 trigger that performance period analyses. The
20 objective of the performance period, though, is to
21 communicate with your stakeholders and how disposal
22 sites are going to limit those long-term impacts and
23 what design features and site characteristics are
24 contributing to minimize them, to minimize the impact
25 to the extent reasonably achievable.

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1 So this was in our proposal to the
2 commission in 2011, and they didn't change -- this is
3 something that the staff proposed then, and it is in
4 the proposal now. Next slide, please.

5 So this is the table that is in the
6 regulation. These are the Class A concentrations.
7 Actually, this table is slightly different than what
8 is in the proposed regulation. At our first meeting,
9 one commenters said -- we had the super script next to
10 numbers here, and so like a 10 with a 3 next to it,
11 somebody might interpret that as 1,000 and can be
12 confusing. And it is not 1,000; it is ten. So we -- in
13 the presentation material, we moved the super scripts
14 over here, just so it wouldn't be as confusing.

15 But, otherwise, this is table in the
16 proposed regulation. These are to be generated on a
17 disposal site average basis, excluding buffer zone.
18 So disposal site is the area where you're actively
19 disposing of waste, maybe the material in between
20 disposal cells, including the backfill that goes into
21 those cells. So we wanted something that was simple
22 and implementable for a licensee and a regulator, a
23 licensee to calculate and a regulator to evaluate "Am
24 I in this performance period analyses region or not?"

25 There are some exceptions to it, though,

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1 as indicated here, or if necessitated by site-specific
2 conditions. That is because, like I mentioned
3 earlier, with the waste classification table, it is
4 hard to do one size fits all for this sort of thing.
5 The guidance document lists what some of those
6 site-specific conditions might be. Those, we believe,
7 should be exceptions. Generally, they shouldn't apply
8 at your site, but as you are reviewing this aspect of
9 the problem, you might want to look at it and say, hey,
10 do I have any of these things at my particular site that
11 I am evaluating? Next slide, please.

12 This is an example from the guidance
13 documents. We have the definition for long-lived
14 waste. This is a review tool where we provide a list
15 of all the isotopes that we would identify as long
16 lived, the parents and the progeny, and then this
17 low-level waste PA inventory is whether we generally
18 would expect to see those in a low-level waste
19 performance assessment. That doesn't mean that you
20 can just look at this table, but it is probably a good
21 review tool to determine what isotopes you might need
22 to evaluate.

23 Now, in low-level waste performance
24 inventory, there are manifest requirements, so when a
25 generator makes waste, they have to identify certain

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1 things when they send that waste to a disposal facility,
2 but the PA for the disposal facility, the performance
3 assessment and the trigger assessment for the disposal
4 facility have to develop the inventory that they are
5 going to dispose of, and that may include isotopes that
6 aren't identified on the manifest. So just keep that
7 in mind for this part of the problem. Next slide,
8 please.

9 So what we are seeking feedback on in this
10 area is this approach to this third tier, whether the
11 Class A values are appropriate to trigger the
12 requirements for the analysis, our averaging approach
13 of trying to use this simple way to average it over the
14 disposal site volume, and then the objective is to
15 minimize to the extent reasonably achievable and to
16 identify the features that contribute to long-term
17 impacts.

18 MR. CAMERON: Okay. Thanks, David.
19 Let's go to phones first on these two issues. Jeremy,
20 can you see if there is anybody on the phone that wants
21 to address either protective assurance period or
22 performance period?

23 PHONE OPERATOR JEREMY: If you would like
24 to ask a question or make a comment, please press star
25 one. I am showing no question or comments in the queue.

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1 MR. CAMERON: All right. Let's go to here
2 in Salt Lake. Let's go to the Farmer Lundberg, I guess.
3 Right? Rusty Lundberg.

4 RUSTY LUNDBERG: Thank you. Rusty
5 Lundberg, again with the Division of Radiation Control.

6 Dave, I was wondering as you talked about
7 the protective assurance period and implying that there
8 might be a natural extension of using what you find in
9 the compliance period for a PA or the intruder analysis,
10 that you can step into this other period, the protective
11 assurance period. I am wondering if there might be a
12 consideration that maybe you need some kind of trigger,
13 rather than some kind of automatic jump in to such an
14 extended period of time, even though it may seem simple
15 to do zero to 10,000 for some of these things, I think
16 just from our experience, I think there are a lot of
17 considerations and inputs that really make for a more
18 complex view, rather than just a simple extension, and
19 I am just wondering if there might be some kind of
20 trigger point, rather than just an automatic extension.

21 MR. ESH: Right. That's a good comment.
22 I understand it. I just don't know right now what we
23 may have written and say the guidance related to this.
24 I will have to check. But, in general, your comment
25 is correct, like you can't just blindly extend the scope

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1 of your shorter-term analysis and apply it to the longer
2 term. There may be things that kick in, in that longer
3 timeframe, that weren't relevant to your first 1,000
4 years that become relevant in the next 9,000 years.

5 So your scope may be different between
6 those two timeframes, the analysis may be somewhat
7 different, but what I was trying to talk to is there
8 might be a different type of analysis that somebody
9 wants to use for that protective assurance period,
10 rather than looking at their performance assessment and
11 intruder assessment. You know, maybe they do some sort
12 of cost benefit analysis or decision analysis, or other
13 sorts of things that are done for optimization-type
14 problems. There might be something along those line
15 that somebody wants to do. I don't know exactly what
16 those might be or what they might look like, but -- and
17 that is why we recommend the approach that we did, but
18 that door is open, right now at least.

19 MR. CAMERON: Cindy?

20 MS. KING: Cindy King with the Sierra
21 Club. I think this is the part where you are going to
22 explain fiduciary duty to me.

23 MR. ESH: Right.

24 MS. KING: And I haven't heard it yet, so
25 are you going to explain it in engineering terms, as

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1 well as legal terms, as well as health effects? That
2 is my one question.

3 My other concern is, so far we -- in our
4 discussion up to this point, we are currently making
5 the assumption that we are going to have the same form
6 of governments that we have across the world, or even
7 in the United States. How are we going to assure that
8 1,000 or 10,000 years down, to assure that we have a
9 regulatory agency? I mean, even in my own state, for
10 example, our legislative body hates the Department of
11 Environmental Quality, which Rusty, who has been
12 speaking, works under, and they constantly are taking
13 money away from that department and its various
14 divisions. So my question goes to, how do we expect
15 our regulators to regulate if they don't have the funds
16 to do so?

17 MR. CAMERON: And I guess the
18 institutional control issue is tied in to the fiduciary
19 duty. Should we see what Lisa London would like to
20 offer?

21 MR. ESH: Let me address the last part
22 first about the funding issue for the programs. We
23 do -- NRC does basically review, to put it in simple
24 terms, of the agreement state programs, and part of
25 the -- part of what we look at when we do that review

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1 is staffing and qualifications; you know, do they have
2 the resources to perform the reviews that they need to
3 do?

4 We also will look at reviews that they have
5 done and look at the quality of those reviews, not
6 necessarily at an extremely detailed level, but, you
7 know, the last of these that I was on for Texas, I do
8 actually -- I did actually get their performance
9 assessment model and look through their performance
10 assessment model and see how they were treating data
11 and that sort of thing.

12 So the resource question, as I indicated
13 earlier, as you are moving towards an analysis, a more
14 analysis-heavy approach, it does require that you have
15 appropriately funded, qualified, competent regulators
16 to look at it because they are -- besides the public,
17 they are supposed to be a check and balance in the
18 system.

19 MR. CAMERON: Very good point.

20 MR. ESH: The fiduciary part -- I mean, my
21 quick engineering answer is the analysis timeframes
22 that we are looking at are supposed to be accounting
23 for impacts to future generations, not just the present
24 generation. And so that is one of the comments that
25 we received from some groups.

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1 That's different than even say the
2 analysis that might be done for municipal landfills or
3 even some chemical waste disposals, where those are a
4 short-term analyses with the potential to review it at
5 the end of some period, and maybe decide to stop. You
6 know, if they aren't seeing much that might be released
7 from that facility, they don't do a long term -- a very
8 long-term analyses for those types of facilities. We
9 are recommending in these requirements long-term
10 analyses to look at the impact of future generations.

11 The impact to, say, environment in
12 general, the NRC has always taken the approach that the
13 limits that we provide for radiological protection of
14 humans also afford some protection to other parts of
15 the environment, you know, Biota and those sorts of
16 things, but Chris has more technical expertise in that,
17 from my area, and Lisa can give you a legal view.

18 MR. CAMERON: Let's hear from Chris, then,
19 Jeremy, if you can make sure that Lisa London is ready
20 to talk to us in a minute or so. But let's hear from
21 Chris McKenney.

22 MR. MCKENNEY: In addition, of course, we
23 are talking a lot about the regulations on the direct
24 safety requirements for land disposal sites. At the
25 NRC, we also have the responsibility to do a national

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1 environmental policy act evaluation of any decision.

2 And so on a site-specific basis, that is
3 where we would be reviewing, are there any stressors
4 on the environment that are more different than caused
5 by the humans? So we don't just say the human doses
6 are low; therefore, the bugs and bunnies are fine. We
7 do the evaluation for any endangered species. We do
8 the evaluation for any other species as part of the
9 environmental -- part of NEPA, because it doesn't
10 matter if that stressor is radiation itself, or if it
11 was land removal, or if it was a heat source in the
12 water, those all could be stressors on Biota that could
13 cause a change, and those have to be evaluated by the
14 national environmental policy act for any major
15 decision.

16 MR. CAMERON: And bugs and bunnies include
17 ants.

18 MR. MCKENNEY: Maybe, yeah. But the
19 other point, which she had which is on government
20 things, that is sort of built into Part 61 from the fact
21 that, hey, if these sites were under perpetual care and
22 that is what happened to them, that would be great. And
23 we try to have them under federal or state
24 landownership, but when we are licensing them at the
25 start, we don't want to make the assumption that they

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1 will be under perpetual care because we don't know what
2 is going to happen in the future.

3 That is why we say that we only will allow
4 somebody to take credit for 100 years of institutional
5 control. It doesn't say it has to be given up at 100
6 years. It says when you are doing the analysis and
7 saying when somebody could damage the site or
8 something, you can't assume that it will be under
9 perpetual ground. You have to make the view that that
10 may be a lower budget item at some point, and changes
11 will occur.

12 MR. CAMERON: Okay. Jeremy, is Lisa on
13 the line?

14 PHONE OPERATOR JEREMY: Lisa, if you
15 could, please press star zero.

16 MR. CAMERON: It is not that late on the
17 East Coast, is it?

18 MS. LONDON: Yes, I needed to hit star one.
19 I forgot about that. Thanks, Chip. My response to the
20 fiduciary duty question would be that the NRC, I think
21 we would answer that we view this fiduciary duty as
22 being achieved through striving to meet the obligation
23 that the NRC has between goals of human health
24 protection and common defense and security. And those
25 are protections of the human health and environment and

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1 common defense security. Those are twin goals, and
2 that is essentially how we carry out our fiduciary duty
3 to the public.

4 I would note that Dave and Chris really hit
5 on some points I think that are important. If you take
6 a look at the technical documents underlying this
7 rulemaking action, you will see discussion,
8 intergenerational equity as being discussed, and I
9 think Chris really noted the fact that the entire Part
10 61 is going towards trying to ensure a safer system is
11 adopted from the get-go with passive controls and with
12 engineering tools that can be used to create such a
13 system.

14 But the staff really did try to take a very
15 balanced look at those intergenerational equity
16 issues. I think more discussion from the earlier
17 technical document, such as the white paper that was
18 generated as a result of the initial staff
19 recommendation for one of the longer compliance periods
20 that was recommended to the commission, but that would
21 still ultimately be one of the factors considered in
22 the proposed package sent to the commission. And you
23 can look at the federal register notice and see that
24 discussed to some degree. And so that would be my
25 response.

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1 MR. CAMERON: Okay. Thank you, Lisa.
2 And David, let's go to safety case and waste acceptance
3 criteria. And note that Matt has asked a question
4 already that probably applies to the WAC. Go ahead.

5 MR. ESH: Okay. The safety case, I will
6 go through fairly quickly. The safety case, first
7 slide 38, this is a figure from an IAEA document, the
8 International Atomic Energy Agency. They have an
9 approach to the safety case that is very comprehensive.
10 The safety assessment is one important component of it,
11 but it is one of many components. This approach is
12 described in specific safety guide No. SSG-23. You can
13 get that from their website. Next slide, please.

14 So the safety assessment has a variety of
15 components to it, including a management system,
16 nonradiological and environmental impact,
17 radiological impacts, operational safety, and site and
18 engineering. The safety case as we are proposing in this
19 regulation, next slide, please, is, I would say, very
20 similar to the major components of the IAEA safety case,
21 but as I indicated, the IAEA safety case is a bit more
22 broad in some areas.

23 So they have something with stakeholder
24 interaction during the siting process, some formal
25 components like that, that aren't part of Part 61. So

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1 that is where there are some differences. But the
2 essential elements are described here. The safety
3 case for long-term safety in 10 CFR Part 61 includes
4 the technical analyses, the various ones that I've
5 described so far, as well as the defense-in-depth
6 components, which I am going to talk about in a few
7 slides here -- or in these slides.

8 So our proposed rule provides a discussion
9 of the safety case and the defense-in-death protection.
10 It explains how a combination of these things should
11 be used to support the licensing decision. Now, one
12 thing we had to do is define what is defense-in-depth.
13 We looked at whether it should be different for a waste
14 disposal facility than a different type of system.
15 Defense-in-depth is used in NRC for many different
16 types of safety analyses or systems, generally active
17 type of systems. So reactors, things with pumps, that
18 sort of thing.

19 A waste disposal facility is a little bit
20 different because while it has -- many of them have a
21 lot of engineering in them, they generally are looking
22 at passive performance of those systems over long
23 periods of time after you close them. You can't rely
24 on maintenance of those systems. You can only look at
25 their passive performance.

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1 But the defense-in-depth definition also
2 was decided to maintain the same one that applies to
3 other NRC systems, and that is the use of multiple,
4 independent and redundant buyers of defense so that no
5 single buyer, no matter how robust, will be exclusively
6 relied on for safety. That does not mean that you need
7 two of each type of component in a waste disposal
8 system.

9 So if there are two -- a drainage layer in
10 the engineering cap, you don't need two drainage
11 layers, but what you do need to demonstrate is how the
12 various parts of the disposal system in the natural
13 environment performs to provide this defense-in-depth.

14 So if you get down to the point where, gee,
15 I fail my performance objectives if I don't have
16 infiltration cover, and I make them if I have my
17 infiltration cover, well, then that will be a case where
18 I think you don't have defense-in-depth because you are
19 not able to demonstrate the performance of your
20 situation by removing that one component. So that is
21 what we are talking about with defense-in-depth; not
22 redundancy of a specific components within the system
23 or redundancy of the system overall. Next slide,
24 please.

25 This is our definition of safety case. I

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1 am not going to read it. The main point is, the safety
2 case is the collection of all the information that you
3 are using to make your licensing decision. We don't
4 believe that the safety case that we are defining now
5 is significantly different from the licensing
6 decisions that have already been made for existing
7 facilities.

8 So an existing facility might be saying,
9 "Well, what do I need to do for the safety case?" My
10 answer would be, maybe describe it a bit differently,
11 and say, here is my safety case, and describe all the
12 things that go into it. But other than that, there is
13 not necessarily new components that -- outside of the
14 defense-in-depth because the defense-in-depth is going
15 to be required, irrespective of the safety case. So
16 that is the definition that you will find in the
17 regulation. Next slide, please.

18 So what we are seeking feedback on is our
19 definition for safety case and defense-in-depth as I
20 either presented them or described them. The concepts
21 related to these in 61.7, and then the requirements for
22 it in 61.10. The same thing with defense-in-depth,
23 there's a requirement for that in 61.13, but it is not
24 specific. It basically says that you need to provide
25 defense-in-depth analyses, but it doesn't say

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1 specifically what they are. You know, is that the
2 right approach? That is what we want your feedback on.
3 And then the requirements, just like the performance
4 assessment and the intruder assessment, to update it
5 at closure.

6 So we will go to waste acceptance criteria
7 now. Waste acceptance, I believe, is -- part of this
8 new regulation. The new requirements for developing
9 waste acceptance criteria provides for an "Or"
10 approach; so you can use the waste classification table
11 to identify what concentrations of radionuclides you
12 can accept at your site, something that Matt and I
13 discussed here earlier and we can discuss again, or a
14 site-specific waste acceptance waste criteria. So
15 what that means is using the result of -- the licensee
16 would be using the result of their analyses to identify
17 what concentrations the specific site could accept.
18 So this material is found then outside the waste
19 classification table, which are still in 61.55.

20 And 61.58, so 61.58 is a revised section
21 that focuses on three areas that all apply to waste
22 acceptance; characterization, the criteria that he
23 used and then the certification process. Next slide.

24 Here is the definition -- or the concept
25 for waste acceptance, and it just reiterates what I

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1 already said. Next slide, please.

2 What we are seeking feedback on is the
3 concepts regarding waste acceptance and then the
4 requirements for waste acceptance. There is very
5 detailed information on the -- in the guidance document
6 because it is a new area, especially using a
7 site-specific waste acceptance criteria.

8 One important point is even though you may
9 be using different approaches to identify what
10 radiological concentrations you can accept at your
11 site, there are still other waste characteristics in
12 10 CFR Part 61 that you must satisfy, and those are
13 61.56, and those are things like the waste can't be
14 pyrophoric, there's limitations on how much liquid can
15 be in the waste; a variety of things like that.

16 MR. CAMERON: All right. Here in Salt
17 Lake, comments on the -- we will go to Mike first. Mike?

18 MR. GARNER: Mike Garner with the
19 Northwest Compact. David, in the Federal Register
20 Notice, under the NRC proposed option, is the following
21 sentence: The hybrid waste acceptance approach
22 provides a framework for the use of either the generic
23 low-level radioactive waste classification systems
24 specified in 10 CFR 61.55, or the results of the
25 technical analysis required in 10 CFR 61.13.

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1 So let's say a licensee in an agreement
2 state -- let's say a licensee and an agreement state
3 decide to use the classification tables. They would
4 still be required to do the requirements under 61.13?

5 MR. ESH: Correct.

6 MR. GARNER: And why would that be?

7 MR. ESH: Right, because they still have
8 to demonstrate that they meet the performance
9 objective, 61.41 and 61.42, and the way that you do that
10 is via the technical analyses. So, I mean, to put it
11 cleanly, the issue becomes -- if you take a material
12 like depleted uranium that is Class A by default in the
13 table, if you just use the tables, then it is basically
14 going unanalyzed from the intruder assessment
15 perspective. If you have to do the 61.42 analysis,
16 then it gets analyzed. You can still use the waste
17 classification tables if you choose to, but it assures
18 for certain types of waste that may not have been
19 analyzed when the waste classification tables were
20 developed, that they get analyzed in this process.

21 MR. GARNER: But, for example, let's say
22 the agreement state and the licensee just want to
23 continue to use the classification tables. That
24 analysis is still required?

25 MR. ESH: Right, that analysis is still

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1 required. And from our view and our experience, the
2 performance assessments, because they are dealing with
3 different types of processes and they are not a stylized
4 calculation, are much more expensive and burdensome to
5 complete than the intruder dose assessment. In many
6 cases, the intruder dose assessment, you can almost do
7 in spreadsheet. It's not the type of calculation that
8 you need detailed, complicated computer models for.

9 MR. GARNER: Okay, thank you.

10 MR. CAMERON: All right. Let's go to this
11 gentleman. Please introduce yourself.

12 SHANE: I am Shane and I am an undergrad
13 student at Brigham Young University. So I had a
14 question about choosing the limits that -- I realize
15 that the ideal is to minimize it, the 25 millirems and
16 the 500 millirems. As I have been doing research on
17 this, I've learned that Utah has a lot of natural
18 uranium. I appreciate your comment about testing our
19 home for radon because there is background radiation
20 wherever we go. I think it is interesting that natural
21 uranium is actually more radioactive than depleted
22 uranium.

23 And so what I was curious about is, since
24 this natural uranium is actually going to be getting
25 hotter and hotter over time, just as the depleted

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1 uranium is, that the background radiation in Utah will
2 be increasing, and if that went into the calculations
3 to determine what the dose limits would be for the
4 depleted uranium.

5 MR. ESH: The natural uranium is not
6 generally going to be getting hotter. It is close -- in
7 many cases, close to what is called secular
8 equilibrium, so it -- because it's been around so long
9 in the earth, it reaches a state where -- it is basically
10 kind of a steady state type of value.

11 So background radiation values can and do
12 fluctuate, but they especially fluctuate due to changes
13 and atmospheric conditions, where radon can change from
14 day to night and from season, for instance. And Radon
15 contributes anywhere from, say, 140 to 200 millirems
16 of, say, like the 300 millirems that you're getting from
17 natural-type sources. So it can fluctuate quite a bit.

18 So the comment about the depleted uranium,
19 the natural uranium on a specific activity basis, can
20 be more radioactive than the depleted uranium,
21 especially the fresh depleted uranium before all the
22 things go into it. But the issue is that the depleted
23 uranium is much more concentrated on a gram per gram
24 of material basis. So the depleted uranium is almost
25 pure uranium. Of course, it has oxygen, if it is

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1 converted to oxygen, or fluoride if it is the US-6 form.

2 But depleted uranium can be up to 80 weight
3 percent uranium, whereas the uranium in the
4 environment, in the yard, wherever you live, might be
5 two to three parts per million. So you are talking like
6 800,000 parts per million versus two to three parts per
7 million. There is a much bigger driving force for
8 effects from the depleted uranium than from most
9 natural uranium.

10 There are some parts in the world that have
11 very high concentrations of natural uranium. Such as
12 in Canada, they have mines that have tens of weight
13 percent, many tens of weight percent natural uranium.
14 Some of those mines need to be mined robotically,
15 though, because of high-radiation doses inside of them
16 from those concentrations of natural radiation.

17 MR. CAMERON: Okay. Yes?

18 RICHARD: Okay, yes.

19 MR. CAMERON: So I would just like to
20 comment that I think that the idea to use either the
21 61.55 waste classification or the site-specific
22 analysis is an idea that I like. I think that it allows
23 leeway for local circumstances, as well as for the NRC's
24 general approach to waste.

25 And I would also like to add that I just

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1 did a couple of background calculations for depleted
2 uranium at secular equilibrium. Assuming that I have
3 my numbers right, which I would be happy to go over with
4 you at the end of this, I found that it has about 38.7
5 curies per meter cubed of transuranic, and 51 and a half
6 meters cubed of other isotopes, which falls well within
7 the limits of the 61.5 limit for Class A waste.

8 MR. ESH: Right, I can look at them with
9 you, but in general, the concentrated depleted uranium
10 would be above the ten nanocuries per gram value that
11 is found in the current 10 CFR 61.55 waste
12 classification table. So it works out to be more than
13 that. So the issue for depleted uranium becomes, you
14 can dispose of some quantity of concentrated material,
15 and it would be below Class A. If you classify it the
16 same way that waste were classified back in the early
17 1980s when those tables were developed. If you have
18 large quantities of it, though, technically, it is
19 above Class A.

20 RICHARD: Okay.

21 MR. CAMERON: Okay. We have someone here
22 and someone back there, and let's go to this gentleman
23 in the back first. And just, please, introduce
24 yourself.

25 BOB ARCHIBALD: Yes. My name is Bob

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1 Archibald. I want to stay with the classification
2 questions for just a minute. Is there a reason that
3 depleted uranium is classified as Class A waste by
4 default? Is there a reason behind that?

5 MR. ESH: Right. The reason is -- it is
6 kind of a historical reason, but when 10 CFR 61 was being
7 developed in the early 1980s, they had to estimate what
8 they thought the waste streams were going to be that
9 would go into commercial low-level waste facility, they
10 being the NRC, me, but I was playing little league in
11 early 1980s.

12 So the analysis was done, the intruder type
13 of analyses, and then we call it an inverse calculation
14 to develop what the concentrations would be that would
15 result in a 500 millirems. Well, they didn't
16 anticipate large amounts of uranium going into
17 commercial low-level waste facilities, so, therefore,
18 uranium was not placed on the waste classification
19 tables. Actually, it was initially, so it was
20 calculated initially. If you look at draft CRF for
21 Part 61, there was value for uranium placed on the
22 table, but when regulation moved to the final one, that
23 value was removed from the table because they got
24 comments from a variety of people, like we are
25 getting -- not that we've received in this meeting

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1 today, but in the public comment process, people said,
2 "Hey, why do you have a value for uranium in there if
3 you're not anticipating a large amount of uranium to
4 go into the facilities?"

5 So the value was removed from the table.
6 So the student from BYU, you can look at those
7 documents, or I can point you to them, and you can see
8 what value is in the tables and the one regulation.

9 BOB ARCHIBALD: The follow-up question
10 is, what is it that we would -- you and me would likely
11 learn should you follow up and there be a formal
12 classification process for uranium? Would that then
13 take into consideration the concentrations that
14 are -- that exist in the high volumes?

15 MR. ESH: Right.

16 BOB ARCHIBALD: Unexpectedly high volumes
17 of depleted uranium? Can you help us understand what
18 would likely go into the formal classification process?

19 MR. ESH: Yes, it would. It would try to
20 take into account the quantities, volumes, and the
21 radiological composition of not just the depleted
22 uranium but other waste streams that you work with, at
23 this time, were anticipating could be deposited of in a
24 low-level waste facility.

25 And so maybe there would be the potential

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1 for other isotopes to be added to the table if they were
2 present in those waste streams, and they could result
3 in a dose or risk impact. So that would be the type
4 of analyses that is done.

5 Now, part of the debate is, once the
6 utility is doing that, if in the proposed regulation,
7 somebody can do the site-specific analyses and
8 determine the concentrations of the types of waste that
9 they are taking, they are effectively doing that
10 analysis. It is just a matter of who is doing it. The
11 licensee in that case would be doing it. If we did it,
12 it would be regulator who would be doing it, and there
13 would be one set of values.

14 Now, personally, I thought about it, and
15 I think we could do some things that were maybe a little
16 more complicated but a little more smarter. We could
17 make something that would not just be a single table
18 but maybe different tables that apply to different
19 environmental conditions, for instance, or some sort
20 of scaling factor that you could use based on the
21 quantity of material you had to classify your waste.
22 There might be something more complicated we could do
23 than just make a table with some new isotopes in it.

24 But as Drew indicated in his comments, that
25 is part of the direction the commission gave us to look

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1 at that in the future action, but you're free to comment
2 on it in this rulemaking. It is just a matter of, we
3 felt that -- for the public stakeholders to fully
4 comment on that issue, you have to see where this ends
5 up, because you might be happy where it ends up or you
6 might be unhappy where it ends up; and, therefore, that
7 is a really important issue to you. But you are still
8 free to, based on how you understand things now, to make
9 comments on that area.

10 MR. CAMERON: Chris, do you have a quick
11 comment?

12 MR. MCKENNEY: Yes. And the point of that
13 is, it is basically preliminary comments right now, on
14 that issue right now, because we have all intention
15 right now of going out and gathering comments after the
16 final rule is actually published, at some point after
17 the final rule, this final rule is published, to then
18 go out and ask "Should we do the waste classification
19 thing" based on what the final rule was.

20 So this is not your only bite at the apple
21 on this issue because, again, you see the rule that is
22 proposed. You don't see the final rule. So any
23 comments right now are based on your implication of how
24 the final rule might show up. But we want to get your
25 comments and you have a chance to provide comment after

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1 the final rule is out there, too.

2 MR. CAMERON: Okay. Let's go back there.

3 JULIE MCCALL: I am Julie McCall. I am
4 pretty sure I know less about this than anybody here.
5 So a couple months ago, Governor Herbert made the
6 comment about how he had a hunch that depleted uranium
7 is hotter than Class A waste. So just look at Barnwell,
8 South Carolina, A, B, and C waste, and I have a friend
9 there that tells me there is some question about whether
10 or not that facility could handle D.U. in such a way
11 that protects the public health, so can you help us
12 believe that the depleted uranium is not hotter than
13 Class A; does that make sense?

14 MR. ESH: Right, I think it makes sense.
15 From my technical perspective, the depleted uranium
16 is -- if you follow the regulation as it is written right
17 now, it falls into a default clause. So the legal
18 interpretation is that it is Class A. The technical
19 interpretation is it is not Class A in the large
20 quantities because if you have just too many curies of
21 material per unit volume, it puts you over that ten
22 nanocuries per gram value that defines Class A waste,
23 or long-lived alpha-emitting radionuclide.

24 The table written right now is only
25 long-lived transuranic alpha-emitting radionuclide

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1 and uranium is not transuranic. If you remove the word
2 transuranic out of there, then, you know, that is how
3 I am getting from A to B. So, yes, I don't know if I
4 answered your question, but, you know --

5 MR. CAMERON: Okay. We have one more
6 question, comment here, and then we will see if anybody
7 on the phones have something. Then there is an other
8 category, if anybody had something, and we will get to
9 Matt. There is another other category, and then
10 there's quick piece on the red guide, and then we will
11 go to our senior official, Drew Persinko, to close us
12 out. So that's the preview of what is going to happen.
13 Introduce yourself please.

14 CURT HARRIS: My name is Curt Harris. I
15 am a PhD candidate, mechanical engineering at Utah
16 State University. I guess I represent our ANS Group,
17 as well.

18 Two questions, actually; first one should
19 equated with less radioactive and natural uranium, why
20 don't we just scatter -- I assume it's cost ineffective
21 but maybe you can comment on that.

22 MR. ESH: To answer that question is in our
23 disposal approach, the philosophy is basically
24 concentrate and contain, not disperse and dilute. So
25 with this amount of material, this amount of uranium,

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1 you could be looking at large population doses if you
2 just dispersed it all over even, though individual
3 doses could potentially be low, depending on how much
4 you disperse it.

5 But, you know, those sorts of strategies
6 were applied in the past. There was ocean disposal of
7 low-level radioactive waste. We don't apply those
8 today. We try to use better engineering, and put
9 things into place and keep it there. So that is just
10 a short answer to the overall philosophy.

11 CURT HARRIS: That is all I was looking
12 for. My second question, so maybe from my prospective,
13 I have young -- I have two young kids. I am more
14 concerned about the billions of tons of carbon dioxide
15 then I am about nuclear waste, you know, a million tons.
16 So I want to see nuclear energy expand, but then, you
17 know -- but I want to see the waste stored safely, which
18 I think you guys have done a great job of helping ensure,
19 but at the same time if we add to the cost of the agency
20 to the cost of the industry, you know, I am concerned.
21 I think your next page is like 434 pages they have to
22 go through, and, you know, understand. Is that too
23 complicated? Too costly? Is that going to slow down
24 nuclear growth or --

25 MR. ESH: Right. I mean, all of these

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1 things are a tradeoff between we all pay for it, so all
2 of us that consume electricity, unless you have your
3 own self-contained solar system or something like that,
4 if you are using public utilities systems, and many of
5 those, at about 20 percent of electricity in the US
6 comes from nuclear, you know. The decision we make
7 with respect to waste disposal, we pay for them in small
8 increments, and so compared against the health impacts
9 that you might generate from the decisions that you are
10 making.

11 And what we propose, or trying to propose,
12 is regulatory requirements that we think will limit
13 those health impacts, but at the same time, not create
14 a lot of burden compared to what is done today for
15 radioactive waste disposal. But today, people are
16 doing these technical analyses, say for the analyses
17 timeframe. The point is, it is just not defined in the
18 regulation. So every agreement state can use a
19 different value, and they have all used different
20 values. And that is one of the comments we received
21 earlier on is try to get some consistency between the
22 different programs.

23 The guidance document is 434 pages, and I
24 don't want you to quit your degree program and become
25 a bartender, but that is kind of what we look at

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1 everyday. You know, I had a flight one time from
2 Washington, D.C. to Las Vegas that I had to review a
3 2,400-page document on -- during the flight, and I did
4 some of it, albeit, pretty quickly. But the guy next
5 to me on the plane said, "I never saw anybody read
6 something as fast as that."

7 MR. CAMERON: Okay, thank you, Curt.
8 Thank you, David. Matt.

9 MR. FERCHEN: Yeah. One thing I want to
10 flag, then we will follow up in writing. I think it
11 is getting late, and it is too much to get into it, but
12 it follows up with what Mr. Garner asked about with the
13 hybrid approach. I think the piece I am confused by
14 is why the licensee gets to pick which approach. And
15 then, as you know, Utah, between Rusty and Governor
16 Herbert, has specifically and strongly said, "Look, we
17 want to keep it. We want to keep that in place. That
18 is our No. 1 priority."

19 And I am trying to balance the licensee
20 gets to pick but the regulator wants to hang on to the
21 table, the foundations of it. So there is a little
22 uncertainty there.

23 MR. ESH: Well, I understand your comment.
24 Chris might want to answer this. My quick answer is,
25 I think state policies can still be applied if they have

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1 certain policies they want to apply, and the compacts
2 can apply policies that they want to apply. So, I don't
3 know. Chris, do you want to add to that?

4 MR. MCKENNEY: Yes. A point of
5 clarification is the licensee applicant gets to
6 propose; the regulator gets to decide, and that
7 decision includes other outstanding issues that have
8 to come into that decision, including the rules and the
9 compact and the hosted interest. So how that gets
10 implemented in the future, I mean, that is going to be
11 probably a large discussion point. That is not
12 completely clear how that will be activated in each of
13 the sites. So that -- they still don't get to choose.
14 They do have to propose and the regulator has to decide.

15 MR. ESH: And the other point is, this is
16 with those areas of the regulation proposed at
17 compatibility Class B, so if those were changed to a
18 lower compatibility class, then the state could choose
19 to do something more restrictive or even something
20 completely different from the compatible class of
21 those. But right now it is a B, and your assessment is
22 correct. If you don't like it, you know, that would be
23 an area you might want to comment on.

24 MR. FERCHEN: Finally, I know it is late
25 and we are all ready to go, but I wanted to respond a

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1 little bit. You know, we certainly would strongly urge
2 the commission to reclassify, and I think that what is
3 lost in little bit of discussion of nanocuries, or
4 whatever, is that any time there is conversation about
5 classification, there are two things that are a piece
6 of that; both implicitly and explicitly. One of those
7 is the sheer hazard right now, and the other one is the
8 duration of that.

9 And I want to point out a couple of things
10 from the very part 61 document of the federal registry.
11 You give some examples in the background part. There's
12 a part that says, "For example, Class C waste may
13 require greater depth" -- you know, I am going to skip
14 a little part -- "To prevent inadvertent intrusion for
15 500 years."

16 There's a part below that, that says, you
17 know, "The commission also noted that containers should
18 be designed to maintain identity over 300 years for
19 approximately the time required for Class B waste to
20 decay to innocuous levels."

21 So we have discussions about how C is for
22 500, B is for 300, yet at the same time, we're supposed
23 to wrap our head around the notion that waste hazard
24 is for millions of years only. And so I think our
25 biggest argument for why depleted uranium can't be

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1 treated as Class A waste is because of the sheer
2 duration of the hazard.

3 It is not that it enters Utah today and is
4 dramatically different than what the company already
5 takes out. That is not true. No one request makes
6 that argument. But when you are making a decision
7 about long-term disposal, you have to think of
8 duration. I think that has to be at the heart of
9 what -- why the commission must reclassify it and should
10 be a strong piece of that. So, thank you.

11 MR. CAMERON: And, Jeremy, does anybody on
12 the phone have anything else to say?

13 PHONE OPERATOR JEREMY: Once again, if you
14 would like to ask a question or make a comment, please
15 press star one and record your name at the prompt. There
16 are no questions or comments in the queue.

17 MR. CAMERON: Okay. Thanks, Jeremy.
18 The other category, anybody have anything else they
19 want to say tonight?

20 MR. GARNER: Mike Garner with the
21 Northwest Compact. As part of the evaluation of the
22 new rules, do you look on how it will impact future site
23 developers?

24 MR. ESH: I am not sure if I have an answer
25 to that, if we looked at how we developed -- how it would

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1 impact future sites. So we looked at existing sites
2 and the cost to them. I think the cost to new sites
3 would be similar. Of course, they would have to do the
4 whole analyses, not just increment their analyses
5 because, you know, say Washington, for instance, has
6 existing analyses that compares it.

7 So it would be similar but we
8 didn't -- actually, we did in the regulatory analysis.
9 I think they added in the cost of some new sites, that
10 they said over this time period, ten years or 20 years,
11 we are going to guesstimate there might be "X" new
12 sites, so, of course, for new sites would be "Y." So
13 now my brain is clicking around, that is in regulatory
14 analysis.

15 MR. GARNER: My concern isn't the cost.
16 It is the public acceptance required for site
17 development.

18 MR. ESH: Okay.

19 MR. CAMERON: Thanks for that, Mike. Do
20 you want to talk a little bit about this 434-page
21 document?

22 MR. ESH: Right. Real quick, you know, it
23 is a part of our process. It doesn't provide
24 regulatory requirements, but it does provide
25 descriptions of approaches the staff would find

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1 acceptable if we were reviewing the materials for a
2 low-level waste facility. And then whatever our
3 agreement states does their licensing process for, say,
4 a low-level waste disposal waste facility, NRC reviews
5 the agreement states from time to time in what is called
6 our in-prep process.

7 We will look at the guidance document that
8 the agreement states may have used when they may have
9 performed their review. They are not forced to use our
10 guidance documents, but we do look to see that they
11 have -- that they use some sort of guidance when they
12 do their review. They can generate their own guidance
13 documents if they would like.

14 So this is a 434-page document, 18 pages
15 of references. We cover the use of other NRC guidance
16 documents. They have a lot of example tables and
17 figures. It's not just 434 pages of words. They have
18 some useful appendixes stability analyses. The
19 document number on NRC's document management system is
20 found down here on the side. It is about 450 pages,
21 and you have about 45 days left until July 24th. So
22 if you want to read ten pages each day with your morning
23 coffee, then you can make your comments on July 24th.

24 MR. CAMERON: All right, thank you.
25 Thank you very much, David. Thank all of you. Rusty,

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1 we will go to you for a final comment here.

2 MR. LUNDBERG: Again, Rusty Lundberg. As
3 far as this guidance document, I haven't looked at it
4 in depth yet, but does it relate somehow or draw on NUREG
5 15-75?

6 MR. ESH: 15-73.

7 MR. LUNDBERG: 73?

8 MR. ESH: Right. It does draw on it some,
9 and it does indicate, say, if there is information that
10 is on the same topic as, say, NUREG 15-73, it will
11 indicate where this should supplement it, or this would
12 override it, basically. So there is a cross block
13 between this and other NRC guidance documents, but as
14 you are well aware, there are all sorts of NRC guidance
15 documents on all sorts of topics.

16 We couldn't necessarily rewrite all of
17 those at this stage, but something we discussed similar
18 to our decommissioning, program whether we need to do
19 a consolidated guidance for low-level waste at some
20 point.

21 MR. CAMERON: Thank you, David, very good.
22 Drew.

23 MR. PERSINKO: Thanks, Chip. Thanks,
24 Dave. I want to thank all of you as well for all of your
25 good questions and comments. Early on, I put up a slide

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1 with my representation about the objective of the
2 meeting. I said three objectives. I said one is
3 discuss the proposed revisions of the rule; one is to
4 encourage submittal of comments; and I also said
5 another one is that we would try to answer your
6 questions as best we could, and also receive comments
7 tonight that will be on the transcribed -- the
8 transcription.

9 I think we have done all that. I think we
10 have done all that quite well. So I just want to say
11 I thank you very much. We had a good turnout. There
12 were a wide variety of comments, and normally, I like
13 to go over a couple of comments, just to refresh our
14 memories a bit. Normally, I try to package them up and
15 group them together, but they were kind of a lot of
16 different areas, so I didn't really put them into bins
17 and package them.

18 A few comments I will mention again, just
19 to refresh our memories. Early on, Rusty stated that
20 he would like us to consider what has already been done
21 in Utah as we go forward with the finalization of the
22 rule. That was an early comment that Rusty made, and
23 we will do that. Let's see, there was also a
24 comment -- I am not going to go over every comment, but
25 a couple of them; one also that kind of caught my

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1 attention was there was a statement made by, I think,
2 some -- that it appears -- this is just a paraphrase,
3 it appears that the rule is really an opening of what
4 can go into a disposal site, and that gave the
5 impression that anything can go -- like it's
6 willy-nilly what can go into a disposal site the way
7 that question was stated, and I hope you got the
8 conclusion now after Dave talked that it is not
9 willy-nilly. There is a lot of thought and a lot of
10 analysis and a lot of planning of what goes into what
11 would be allowed into an acceptable disposal site,
12 given all the analyses that Dave has presented. It is
13 not just -- so I didn't want people to walk away
14 thinking, well, rulemaking is basically just a
15 willy-nilly approach as that one statement -- one could
16 interpret that statement that way, so I just want to
17 clear that up.

18 Dave talked about performance assessment
19 as one of the analyses of determining whether a site
20 is appropriate of accepting certain kinds of waste.
21 Another statement that was made by Matt, I thought it
22 was a good observation, he said we rely on technical
23 analyses to the point where it is hard for maybe
24 nontechnical public to understand the analyses. And
25 that is true but is not just true in this field. It

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1 is true overall in any technical field. You know, you
2 can point to other areas. You can point to the design
3 of high-rise buildings for earthquake. You can point
4 to design of whatever.

5 But, you know, as we progress in our
6 technical understanding of issues and items, we expand
7 the knowledge base, and we try to get -- do our analyses
8 better and fine tune them and make them better. And
9 so, they are very complicated. I mean, it is not that
10 the most nontechnical members of the public really have
11 trouble understanding that and not is in just this area;
12 I am saying it is typical of all technical analyses.

13 Dave said something to the effect of that
14 is why the farmer is here, to chase away the foxes.
15 Well, that is sort of true. I mean, that is one of the
16 reasons that regulatory agencies exist, like the NRC and
17 other regulatory agencies, is because we do have a lot
18 of people with variety of expertise who do understand
19 those kind of documents and are able to regulate based
20 on our understanding of the document.

21 So I just wanted to mention that that is
22 unfortunate that we can't put something so technical
23 to -- for members of the public, but that is the desire.
24 It is a trick, a trick for the technical people to try
25 to explain to nontechnical members of the public a very

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1 technical subject, which is really what Dave was doing
2 tonight as he was speaking.

3 Let me see, another comment; we also had
4 a lot of comments tonight in the data category. We had
5 a lot of comments throughout the evening about
6 classifications between uranium. There was a lot of
7 discussion about depleted uranium. So there was one
8 grouping of comments that I guess we could make that
9 had to do with surrounding depleted uranium and the
10 characteristics of the depleted uranium.

11 So those were the comments and the
12 questions that kind of jumped off the page at me. So
13 first of all, let me also -- I want to, I want to -- I
14 think Dave did a really nice job, you know, explaining
15 the rule. He took a very complicated subject and tried
16 to explain it at a level that everybody could
17 understand, whether you are technical or not. Now, I
18 think he did a good job at that, but I guess it is up
19 to you whether he did or he didn't, but I think he did,
20 and so that is good. I think he has a knack of doing
21 that kind of explanation.

22 Also at the beginning, I said in is our 7th
23 and final public meeting, so Dave did most of the
24 presentations of those seven. I think he missed two,
25 I think, maybe. So I think, you know, if you want to

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1 talk about somebody who may be happy that the Part 61
2 meetings are over, I think Mr. Esh over there, Dr. Esh
3 might be one of them. So Dave had to stand to do what
4 he did tonight five times. So congratulations to Dave.

5 So where do we go from here? Path forward;
6 as I said in my opening remarks, please submit your
7 comments. We -- as Steve, said the comment period
8 closes on July 24th, I think he said. We did hear
9 tonight that some people, some stakeholders, plan to
10 request an extension of that, and we will look at the
11 extension and consider it when we receive it.

12 So the normal process for rulemaking now
13 is we review the comment, we bin them, try to group them
14 so we can respond to comments as in groups, rather than
15 one by one because there is usually quite a few
16 comments. So we will look at the comments. We will bin
17 them. We will respond to them. Then we will work with
18 the commission to draft up a final rule and work with
19 the commission to finalize the rule.

20 So I do want to thank everybody for
21 attending. I especially want to thank the students
22 from Brigham Young and University of Utah. It is
23 always nice to have students in an audience.

24 SPEAKER: Utah State.

25 MR. PERSINKO: Oh, Utah State, excuse me.

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1 I apologize for that faux pas. Thank you very much.
2 Always nice to have students in the audience because
3 remember, all of us people up here, we were your seat
4 at one time. So thank you very much.

5 MR. CAMERON: Just one clarification is
6 that because all the comments that came in were on the
7 record, you have received the request for extension.
8 Okay?

9 MR. PERSINKO: Correct, that is right.

10 MR. CAMERON: But I it may be written
11 comment but you have --

12 MR. PERSINKO: I think that is right, you
13 are right.

14 MR. CAMERON: Thank you.

15 MR. PERSINKO: Do you have anything more?

16 MR. CAMERON: I think that is good.

17 MR. PERSINKO: Thank you very much. We
18 will conclude the meeting.

19 (The meeting was concluded at 9:31 p.m.)
20
21
22

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